

# Railway Age Gazette

Including the Railroad Gazette and the Railway Age

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AS A. T. Hadley is recognized as the leading authority on railway economics in the United States, and W. M. Acworth as the leading authority in England, so M. Clement Colson is recognized as the leading authority in France. We have often published articles containing comments by Mr. Acworth on the railways of the United States. As our readers know, he has repeatedly expressed a very high opinion of the skill and efficiency with which they are managed. This week we publish on another page some comments on our railways by M. Colson. Approaching the subject with a foreigner's lack of bias, he commends the "initiative of the American companies." He criticizes the legislation that prevents them from making reasonable agreements regarding rates, and defends the policy they have followed in spending large sums from earnings for betterments. He expresses the opinion that "on the whole the amount of railway securities in the hands of the public is notably

less than the actual cost of the lines, and less by an even greater amount than the cost of constructing them would be today," and he attacks as absurd "the idea that the reasonable rate of each railway is that which furnishes its invested capital with a return corresponding to the average rate of return upon other equally secure investments." We commend the views of this expert and impartial foreigner to the attention and consideration of the newspapers and magazines that are discussing, and the legislatures and commissions that are dealing with, the problem of railway regulation. It will be found that M. Colson's ideas differ widely from those now prevalent in this country on some phases of the railway problem; and therein may be food for reflection.

COMMISSIONS, and courts as well, in considering reasonable rates, lay a stress on the cost of service that, to the traffic man who has found after long experience that the great majority of his rates must be based on value of service, seems excessive. There is, however, one part of railroad service which does not bear anywhere near its due share of the burden of rates on either principle. This is terminal service in a big city. It has been suggested that railroads operating into large cities should have their own system by which the charge for freight should be proportionately higher, as this freight is carried to the most congested parts of the city where land values are highest and where terminal facilities are hardest to obtain. Unquestionably if any such plan were to be put in practice it would meet with bitter opposition on the part of shippers; but if this opposition were analyzed it would amount to just about this: The shippers in large cities where land is very valuable want a service from the railroads which has to be paid for not from the traffic which is carried to them, but from the total revenues. An additional charge for terminal service would be one of the easiest rate advances to justify of any that the railroads could suggest. Whether the justification were based on cost of service or on value of service, justification would be equally easy. There is a modification of this zone plan of terminal charges that might be, however, easier to put into effect. If the railroads were to establish warehouses and terminals on cheap land a little way outside of the large cities, for instance, on the Jersey meadows outside of New York, quote their rates to this terminal and make an additional charge for door delivery, they would place the burden of the cost of this service more nearly where it belongs and might not meet the same opposition from shippers as would be the case if they established terminal zones. The Supreme Court's decision in the bridge case at St. Louis holding that a terminal association must permit any road that wants so to do to build to a city and use the terminals of a terminal association on the same basis as the charter roads in the association, has already let down the bars to competition of roads that have not heretofore had terminals in large cities. A plan, therefore, for establishing warehouses and terminals outside of the large cities would not meet with the same opposition now from roads that wish to keep out possible new competitors as it would have before this decision was handed down.

SELF-RESPECTING publications seldom print or notice anonymous communications. The *Railway Age Gazette* is going, for once, to depart from this good rule. We have received a letter postmarked Chicago and signed "Mr. Green," commending the editorial published in our issue of October 11, on the giving by railway supplymen of Christmas presents to railway officers. Our correspondent criticises us, however, because we do not go farther. He charges that, "The same practices are in effect at all conventions and at every gathering where these men (that is, railway and supplymen) meet. Large sums of cash are handed out at such places and bundles of good money are spent for booze, balls, card parties, women, auto rides, boat rides, candies, flowers, theaters, dinners, cigars, etc., etc." Continuing, he says, "Supplymen, on the whole, have but one object in view, and that is to increase their business with such

actions. What chance would a man have to sell his wares if he did not give any graft? It cannot be called anything else. Your paper is working in the right direction, but how can you consistently confine your efforts to only the holiday graft donations? A bunch were recently criticising you for such inconsistency. Your plain duty is to publish the plain facts when such are working an injury and injustice and very liable to demoralize railway and supplimen." We have now published the facts, if they are as stated by "Mr. Green," for we have published his statements in his own exact language. There is a good deal of truth in what he says. But the charge made by him and the "bunch" to which he refers, that the *Railway Age Gazette* has been inconsistent in this matter is false. We have not confined our criticisms to the "holiday graft." Every one who has read this paper knows this and everyone who has not read it can confirm it by looking through our files. (See especially an editorial in the issue of October 22, 1909, page 737, on convention entertainment features; an editorial in the issue of September 16, 1910, entitled "The Illinois Central Car Repair Scandal"; an editorial note on the same subject in the issue of September 23, 1910; and an editorial entitled "Reports About Railway Grafting" in the issue of February 23, 1912.) We have constantly denounced all forms of graft and everything bearing the appearance of it. Furthermore, it is not alone the *Railway Age Gazette* that has a duty to perform in regard to this matter. How are others performing their duty? The "bunch" who, our correspondent says, were criticising us—did they, perhaps, perform their duty and show their consistency by giving or accepting graft, and then criticise us because we did not criticise enough the giving and accepting of it? And our correspondent—he performs his duty, and shows his consistency and courage, by writing us a letter criticising us for failing to fall foul of all kinds of graft all the year round, and then refrains from signing his name to it! God help the reforms whose achievement depends to any considerable extent on the "bunch" that stands around and criticises those who are trying to play well their little part, or on the individual who writes letters making sweeping general charges to which he will not sign his name, even for the information of the editor.

"THE Steamer Maryland Route" for passengers between Boston and Washington is no more. The New York, New Haven & Hartford last week Friday, following a meeting of the directors of the company in New York City, announced that the transfer of passenger cars across New York harbor would be discontinued that very day. The growing freight traffic on the East and North rivers and the possibilities of danger connected with the increasing number of freight boats, especially the dangers incident to fogs, which may be expected to increase as cold weather comes on, are given as the reason for the action taken. For many years two trains each way have been carried across the harbor daily, one in the night and one in the middle of the day. The company's announcement says that the trains may be run by way of the Poughkeepsie bridge, but no announcement that such an arrangement would actually be made has yet appeared. The Poughkeepsie route is over a hundred miles longer than the one through New York City and a good deal of it is single track and far from being either straight or level. There is no question about the risks of navigation in New York harbor. Slight collisions of car floats, resulting in the submergence of from two to a dozen freight cars, occur every now and then. A boat loaded with cars can make but poor pretensions to being seaworthy, and an accident, even a slight one, to a boat carrying a half dozen passenger cars, occupied by passengers, would be very disturbing. The action of the New Haven directors is probably to be classed as a very commendable locking of the stable door before the horse is stolen. This harbor transfer, however, has been very popular and we do not recall any serious accident to the boats. The distance from the New Haven wharf north of Hell Gate to the Pennsylvania dock at Jersey City is about 12 miles, and for long stretches the current is very

swift for many hours each day. These through trains were put on in May, 1876, the month that the Centennial Exposition at Philadelphia was opened, and for the first 15 years of their career, they were run over the "Air Line" and the New York & New England, east of New Haven, the New Haven road at that time having no line of its own east of New London. This trans-harbor route was established because of the delay and inconvenience of transferring across New York City. In 1876 there was no elevated road, and horse cars, hacks or omnibuses had to be used for the three-mile journey from the Grand Central station to the Hudson River ferry; and then there was the ferry. Now the Pennsylvania terminal is in Manhattan, within less than a mile of the Grand Central, and taxicabs make the transfer in the evening in less than 10 minutes. Passengers southbound can leave Boston at 5:30 p. m., and Washington northbound at 5:35 p. m. and still have a good night's rest over the last half of the journey, and get through in substantially the same time as before.

#### BE OPTIMISTIC—BUT NOT TOO OPTIMISTIC.

THE reports of earnings for recent months indicate that the railways have turned the corner financially. As pointed out in an editorial entitled "The Rate Advance Decisions and Eighteen Months After," published in this paper on August 2, 1912, earnings up to and including May, 1912, were very unsatisfactory. As shown then, net operating income in the fiscal year 1911 on roads earning more than \$1,000,000 gross a year was \$307.05 per mile less than in the fiscal year 1910; and complete statistics for the year ending June 30, 1912, for the same roads (which have since become available) show that their net operating income in the fiscal year 1912 was \$112 per mile less than in the fiscal year 1911. In June, 1912, however, net operating income showed a slight increase over the same month of 1911, and in July, 1912, there was a further improvement. Reports of individual roads show that there were large increases in gross and substantial increases in net in August and September also. The business now being handled is very large, and this promises to be the case indefinitely. In consequence there is for the first time in many months a feeling of optimism regarding railway affairs among railway officers, and a still greater feeling of the same kind among the public. It is pertinent to suggest at this time that while there is ground for optimism the railways are not out of the woods by a long way and will not be for many months, even though conditions remain favorable.

In the first place, the prolonged depression has left many properties in a very unsatisfactory condition. An eminent railway executive said once, in testifying before the Interstate Commerce Commission, that a railway is like a man with typhoid fever; it is always either getting better or getting worse. The statistics show that for months, and even years, numerous railways certainly have not been getting better. During the five years, 1903-1907, inclusive, fifty of the leading railways of the country spent an average of \$1,340 per mile per year for the maintenance of way and structures. During the five years, 1908-1912, inclusive, they spent an average of \$1,463, an increase of 9 per cent. Superficially this may seem to indicate that they were better maintained in the latter than in the former period. Really it shows the opposite. Large expenditures were made during these periods for permanent improvements. The average net capitalization per mile in 1906 was \$58,050, and in 1910 it was \$62,657, an increase of 8 per cent. Each mile of railway was during the latter period a more valuable property than during the former period. On the whole, the unit costs of labor and materials were higher in the latter period than in the former. For example, the average wages of section foremen in 1906 were \$1.89, and in 1910, \$2.08, and the average wages of other track men in the two years were \$1.40 and \$1.52, respectively. Therefore, a given expenditure represented the use of less labor and materials in maintenance in the latter than in the former period.

Again, the average amount of business handled on each mile



of railway was larger during the latter than during the former period. The average number of passengers hauled one mile per mile of road per year during the earlier period was 111,045, while in the four years ending June 30, 1911, it was 131,683, an increase of 18 per cent. The average number of tons hauled one mile per mile of road per year during the five years ending June 30, 1907, was 916,167, while in the four years ending June 30, 1911, it was 1,013,323, an increase of 10½ per cent. There was a small increase in the number of passengers hauled per train and a substantial increase in the number of tons hauled per train, and therefore the number of train miles run, and the damage to track resulting from train operation did not increase as much in proportion as the amount of traffic handled. Nevertheless, considering the increased investment in each mile of line, the increase in the unit costs of labor and materials, and the increase in the amount of traffic handled, it seems clear that in order to keep the way and structures in a satisfactory condition, there should have been a larger increase in the expenditures on maintaining them than a mere 9 per cent. The conclusion is unavoidable, that considering the railways as a whole there is a large amount of deferred maintenance of way and structures which must be made good from future earnings.

On the same fifty railways mentioned the average expenditures per mile per year for maintenance of equipment during the 5-year period 1903-1907, inclusive, was \$1,370, and during the five years, 1908-1912, inclusive, \$1,736, an increase of 27 per cent. This was a very substantial increase in expenditures on this account. But there was meantime a large increase in the amount of equipment to be maintained. The following table gives the amounts of equipment per 1,000 miles of lines in 1906 and 1910 and the percentage of increase in the number of each. Later statistics are not given because the Interstate Commerce Commission has not compiled them.

	1906.	1910.	Increase.
Locomotives per 1,000 miles of line.....	232	245	6 per cent.
Passenger cars per 1,000 miles of line.....	190	195	3 per cent.
Freight cars per 1,000 miles of line.....	8,266	8,866	7 per cent.
Company's service cars per 1,000 miles of line..	354	449	27 per cent.

There has also been a large increase in the size and capacity of locomotives and cars, and in the amount of investment represented by each. The average capacity of freight cars in 1906 was 30 tons, and in 1910, 36 tons, an increase of 20 per cent. The average tractive power of locomotives in 1906 was 24,741 tons, and in 1910, 27,282 tons, an increase of 10 per cent. There were like changes in passenger cars, although statistics regarding them are unavailable. Figures for the 5-year periods ended June 30, 1907, and June 30, 1912, would show more striking developments in the same direction if they were at hand. Of course, the cost of adequately maintaining each of the larger and more expensive locomotives and cars would be greater than the cost of maintaining those they have superseded, even if there had been in the meantime no increase in the unit costs of the labor and materials used. There have been, however, increases in these costs. The average wages of machinists per day increased from \$2.69 in 1906 to \$3.08 in 1910; the average wages of carpenters, from \$2.28 to \$2.51; and the average wages of other shopmen, from \$1.92 to \$2.18. There have been additional substantial raises in their wages since 1910. In view of the increases in the amount of equipment per mile, in its size and capacity, and in the wages and the costs of materials for maintaining it, the increase in expenditures per mile for the maintenance of equipment during the last five years, even though we take into consideration the marked improvement which has been made in repair shop efficiency, seems to be relatively too small, as compared to the preceding five-year period. Another feature which must not be lost sight of is that few if any roads make nearly large enough charges for depreciation.

The purchases of new equipment in recent years, as indicated both by the orders placed and by the prevailing car shortage and congestion of traffic, have been plainly inadequate. The orders placed thus far in the calendar year 1912 have been large, but during the four calendar years ending with 1911 the

orders for freight cars amounted to but 526,350, as compared with 939,902 for the preceding four years; and the orders for locomotives in the 4-year period ending with 1911 aggregated only 11,169, as compared with 17,927 for the preceding four years. There is a large amount of deferred maintenance of equipment, as well as a large amount of deferred maintenance of way and structures to be provided for from future earnings.

In addition to making good this deferred maintenance, the railways, for their own good and that of the public, should, during the next few years, make enormous expenditures for permanent improvements in existing lines. Many of these improvements, while of public benefit, will neither increase gross earnings nor reduce operating expenses, which means that they will not add to net earnings. Such improvements should be made from current earnings. There are needed many other expensive improvements which will tend to reduce operating expenses, and which should therefore be made from capital. Whether such improvements as better ballasting, elimination of grade crossings, general installation of block signals, general substitution of steel for wooden passenger train equipment, revision of grades, construction of double track, passing tracks, yards and terminals and purchase of additional equipment, should be made partly from earnings and partly from capital, or entirely from capital, it is evident that the total expenditure for them ought to be something enormous. The extent to which our railways ought to be intensively developed is indicated by the fact that in Prussia-Hesse 42.3 per cent. of all the railway mileage has two or more tracks, in France 43 per cent., in the United Kingdom 55.8 per cent., and in the United States only 9 per cent. We now have about 246,500 miles of railway, and only about 23,000 miles has two or more tracks. We would have to add 80,000 miles to our present double-track mileage to make it as large in proportion as that of Germany and France, and 92,000 miles to make it as large in proportion as that of the United Kingdom. Because of differences in conditions we do not need as much double track in proportion as the other countries mentioned, but that we need a great deal more than we have is certain.

Besides the making of extensive and expensive improvements in existing lines, there ought to be a revival of new construction. Statistics compiled by the *Railway Age Gazette*, based on reports furnished to us by the railways, indicate that during the four calendar years ending with 1907 there were built 18,695 miles of new line, while during the four calendar years, 1908-1911, inclusive, there were built only 14,150 miles of new line. Our railway mileage is much larger, in proportion to population, than that of the leading countries of Europe. In 1909 we had 26 miles of line for each 10,000 inhabitants, as compared with 5.67 miles in Prussia-Hesse, 6.35 in France, and 5.17 in the United Kingdom. On the other hand, our mileage in proportion to area is still much less than that of the leading countries of Europe. In 1909 we had only 7.93 miles of line for each 100 square miles of area, while Prussia-Hesse had 16.83, France (1908), 12.04; and the United Kingdom, 19.18. There are still very large sections of the United States which need a much greater railway mileage for their adequate development.

Various estimates have been made as to the amount of new capital which ought to be spent within the next few years in the development of American railways. Based on the experience of recent years the Railway Business Association, in a bulletin issued on February 23, 1912, estimated that if the shippers were to have railway facilities commensurate with the increase of tonnage for which they are demanding transportation, there must be expended during the half decade, 1911-1915, inclusive, over three and a half billion dollars for additions and five billions to maintain the plant as it existed at the end of 1910, a total of eight and a half billions. The Railway Business Association, in its calculations, apparently had in mind only the increase in facilities that would be necessary to move the business. It seemingly did not have in mind the further expenditures essential to handling the business with the degree of safety that

the public demands. If both the demands of expanding commerce and the need for increased safety be considered, its estimate, and probably all others that have been made, as to the capital requirements of our railways, are too small.

Where is the money to come from to make good all this deferred maintenance and to provide the needed improvements and extensions? A large part of it must be earned. The rest must be raised by the sale of securities; and the money necessary to pay a return on these securities must be earned. The financial situation of different railways varies widely. Generally speaking, however, it has become increasingly difficult for the roads to sell bonds bearing a low rate of interest, both because the ordinary market rate of interest has increased, and because the railway funded debt already outstanding covers most of the properties. Of the capitalization outstanding in the hands of the public in 1910, \$5,527,000,000 was stock and \$8,812,000,000 funded debt. The railways now have debtors enough. What they need to do and want to do is to take in additional partners by selling more stock. But to sell stock on a satisfactory basis the prospective dividends on it must be larger than the interest on bonds. Because many railways are unable to pay dividends, they are unable to market stock at all; and because many others are unable to pay adequate dividends they cannot market stock except at prices much below par.

It would seem that the foregoing statement of facts should sufficiently indicate why it is suggested in the caption of this editorial that we be optimistic about the railway situation, but not too optimistic. Gross earnings are increasing rapidly. But what the railways most need is net earnings; and the question of vital moment now is whether they are going to get larger net earnings, and if so, how much larger? How much are operating expenses going to increase? Are public authorities going to renew their attacks on rates? Or, on the other hand, are they going to inform themselves as to the true situation and act accordingly? The answers made to these questions, and not the increases in gross earnings, will determine the history of American railways during the next few years. And in determining the history of the railways they will to a larger extent determine the history during the same period of industry and commerce in general in the United States.

#### CHANGES IN INTERCHANGE RULES HELD UP.

**P**ROPOSED changes in the M. C. B. rules of interchange, intended to facilitate the prompt exchange of cars at interchange points, and to relieve congestion at such points during periods of heavy traffic, which were recently authorized by an almost unanimous letter ballot of the Master Car Builders' Association, have encountered an obstacle in the opposition of the private car lines owned by the meat packers. The changes would abrogate the rules that penalize the delivering lines for those owners' defects, which under the present code become delivering line defects when a car is offered in interchange, and would add a direct percentage of 10 per cent. to the labor and material charges for repairs as shown on the monthly bills. The recommendations of the arbitration committee of the M. C. B. Association, and the resolutions of the executive committee approving them, were outlined in the *Railway Age Gazette* of September 13, page 476.

Because of the proposition to increase the allowances for repairs the packing interests actively opposed the adoption of the proposed changes while the ballot was in progress. When the vote, which was completed on September 28, was found so nearly unanimous in favor of the two propositions it was supposed that the changes would be made effective in time to assist in expediting the movement of the heavy traffic this fall. The modifications of the rules necessary to carry out the recommendations were decided on at a meeting of the arbitration committee in Chicago on October 10, and were to become effective at midnight on October 31. The railways have been awaiting the issuance of the circular containing them in order that their inspectors might at once be drilled in carrying them out. The circular has not

been issued, however, the reason being that the packing interests have succeeded in getting another meeting of the executive committee called to further consider the matter.

The objection of the packers was at first directed chiefly against the proposal to increase the repair allowances, the ground taken being that they would be subjected to increased cost for repairs to their cars, and as they do no reciprocal repairing, they would be unable to offset the increased expense by increased revenue for repairing for others, as each railway is able to do under the reciprocal arrangement between the roads. It was also claimed that the present prices fixed by the old rules are sufficient, and that any added percentage would constitute a burden not justified by the existing mileage rentals for private cars. The experience of the railways has been that the labor and material prices authorized by the M. C. B. rules do not generally permit the work to be done at cost, and that consequently foreign cars, instead of being repaired by the handling company, are forwarded home under card. The purpose of increasing the allowances was to furnish some incentive to the maintenance of foreign cars, which would reduce the proportion of bad order cars and increase the efficiency of the equipment supply. Since the completion of the ballot the packers have also objected to the change increasing the responsibility of the car owner for necessary repairs. This change was made with the idea that it would reduce the carding at interchange points about 50 per cent., it being the unanimous opinion of the executive committee that carding in interchange such defects as those in question does not promote the safe movement of the car. It is received with the defects as carded for, and even though the card is applied it is still necessary for the receiving line to inspect the car and decide whether it is safe for movement. It was also the unanimous opinion of the committee that the penalty clause does not promote freight car maintenance, and that therefore the delay to traffic in interchange on its account is not warranted.

Whether or not the present allowances are sufficient is entirely a question of fact. An overwhelming majority of the car owners of the country have decided that they are too low. It is also a matter of record that at least one of the packers' private car lines has been adding 10 per cent., and has even demanded 25 per cent. above the M. C. B. prices, for repairing the cars of others. Moreover, if the increased price promotes freer movement of cars the private car lines would profit by the increased mileage.

The private car lines own less than 5 per cent. of the cars to be affected by the rules; and yet their objections have been allowed to delay a project which the owners of the other 95 per cent. have decided should be put into effect at once. A large number of roads are prepared to put their own rules into effect at the various interchange points if the proposed rules cannot become operative by November 1. This will mean a return to the condition of chaos which the M. C. B. Association has been striving to remedy. If the private car owners feel that their rentals are not sufficient to enable them to accept the conditions under which other cars are operated it would seem that their efforts should be exerted to getting a change in the rentals, not to prevent modifications in the rules of interchange that are needed for the satisfactory movement of all the freight cars in the country, of which theirs are but a small part.

The Interstate Commerce Commission has ordered an early investigation of the entire subject of the relations between the private car lines and the railways, which will include the question of rentals. If the present rentals are not adequate a full opportunity will then be afforded for presenting the data necessary to demonstrate this.

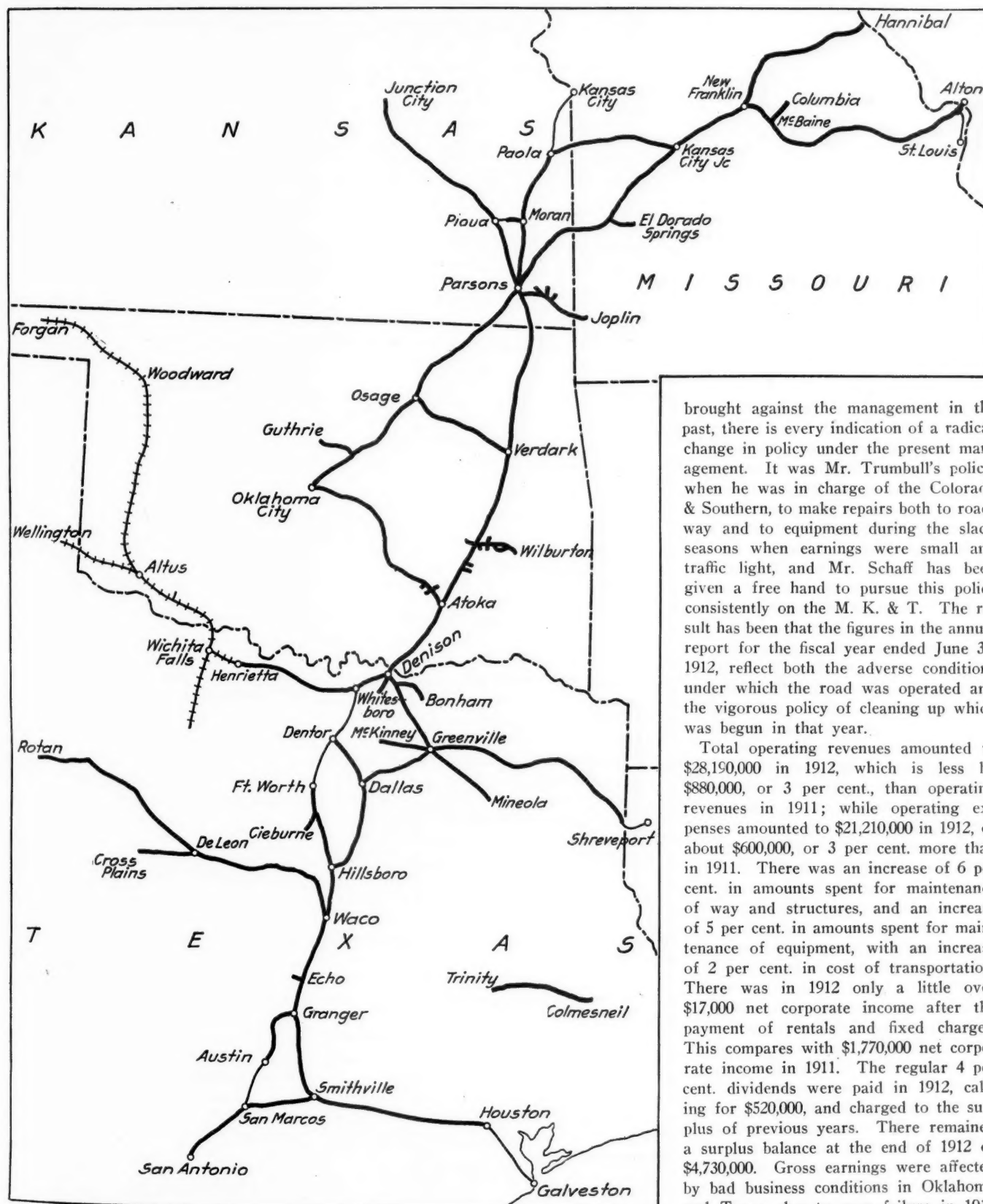
The meeting of the M. C. B. executive committee was called for Thursday of this week, and its results may be known by the time this is published. Regardless of the outcome, the incident furnishes an illuminating example of the way in which big business has constantly tried to influence and often interfere with the efforts of railways to improve conditions.



## MISSOURI, KANSAS &amp; TEXAS.

IT often happens that when a new management takes hold of a property, the first year's showing is the result of the policy pursued by the former management, made worse, often, by the very fact that there has been a change in policy. In the first annual report of the Missouri, Kansas & Texas, signed by President Schaff and Frank Trumbull, there is no attempt made to

conceal or soften down the fact that the fiscal year ended June 30, 1912, was an unfortunate one for the Missouri, Kansas & Texas. It has often been the case on American railroads that appropriations for maintenance have been made with an eye on the New York Stock Exchange rather than on the exigencies of the property, and probably this was the case at times with the Missouri, Kansas & Texas. If this charge could have been



The light lines show trackage rights and the crosshatched line is the Wichita Falls now owned.

The Missouri, Kansas & Texas Lines.

brought against the management in the past, there is every indication of a radical change in policy under the present management. It was Mr. Trumbull's policy, when he was in charge of the Colorado & Southern, to make repairs both to roadway and to equipment during the slack seasons when earnings were small and traffic light, and Mr. Schaff has been given a free hand to pursue this policy consistently on the M. K. & T. The result has been that the figures in the annual report for the fiscal year ended June 30, 1912, reflect both the adverse conditions under which the road was operated and the vigorous policy of cleaning up which was begun in that year.

Total operating revenues amounted to \$28,190,000 in 1912, which is less by \$880,000, or 3 per cent., than operating revenues in 1911; while operating expenses amounted to \$21,210,000 in 1912, or about \$600,000, or 3 per cent. more than in 1911. There was an increase of 6 per cent. in amounts spent for maintenance of way and structures, and an increase of 5 per cent. in amounts spent for maintenance of equipment, with an increase of 2 per cent. in cost of transportation. There was in 1912 only a little over \$17,000 net corporate income after the payment of rentals and fixed charges. This compares with \$1,770,000 net corporate income in 1911. The regular 4 per cent. dividends were paid in 1912, calling for \$520,000, and charged to the surplus of previous years. There remained a surplus balance at the end of 1912 of \$4,730,000. Gross earnings were affected by bad business conditions in Oklahoma and Texas, due to crop failure in 1911 and to the low price of cotton, and traffic conditions were further adversely affected

by unusually severe weather. Passenger earnings were smaller by 8 per cent. in 1912 than in 1911, where normally there is an increase of between 5 and 10 per cent. in passenger earnings on southwestern roads. There was a quarantine against spinal meningitis in Texas, and the war in Mexico must have also adversely affected passenger earnings; the M. K. & T. does a considerable passenger business from St. Louis and Kansas City to Mexico in connection with the National Railways of Mexico.

The Missouri, Kansas & Texas operates 3,399 miles of road, of which 1,635 miles of road are in Texas. It has rather high capitalization per mile, so that the future value of its stock depends largely on the ability of the management to save money and on the development of the road's territory. It competes with the St. Louis & San Francisco without, however, having a connection of its own to Chicago, which is furnished to the Frisco by the Chicago & Eastern Illinois. Its earnings in 1912 amounted to \$8,292 per mile, compared with the Frisco's \$8,319 per mile, excluding both earnings and mileage of the C. & E. I. The M. K. & T. carried in 1912 a total of 8,720,000 tons of freight, of which 42.47 per cent. was products of mines, 23.65 per cent. products of agriculture, 13.90 per cent. manufactures, 6.80 per cent. products of lumber, 5.78 per cent. products of animals, and 5.53 per cent. L. C. L. merchandise.

The M. K. & T. runs through a treeless country. The Frisco, on the other hand, gets down into the lumber country both in Arkansas and in Oklahoma. Of the Frisco's tonnage in 1911, 19.39 per cent. was furnished by products of forests. The Missouri, Kansas & Texas needs lumber traffic. It needs a haul northbound; but, more important than this, it needs a haul northbound of slow low grade tonnage that will furnish a steady traffic that can be depended on and which can be temporarily held up during the times of unusual rush in such commodities as fruit and vegetables and other agricultural products, or in times of unusually heavy passenger traffic.

During the year the M. K. & T. bought the outstanding securities of the Wichita Falls & Northwestern and the Wichita Falls & Southern, shown on the accompanying map by a cross-hatched line. These roads, like the M. K. & T. itself, run through a treeless country. The M. K. & T. has also bought, since the close of the year, a short line running from Livingston, through Trinity to Weldon, Tex. Livingston is not shown on the map, but it lies about 20 miles south of the middle of the orphan line of the M. K. & T. running from Trinity to Colmesneil. This orphan line was bought at the time that the M. K. & T. was a Gould line. The Goulds, of course, also controlled the International & Great Northern, with which the Trinity-Colmesneil line connects, and, therefore, the fact that the M. K. & T. had no connection with this line made little difference, since it was all in the family. As a matter of fact, the reason that this particular Gould line bought the Trinity-Colmesneil line was probably because the M. K. & T. happened just at that time to be in a better position to furnish money for the purchase than was the International & Great Northern. This Trinity-Colmesneil line runs through a good timber country, and the new Livingston-Weldon line also runs down into a very good timber country.

The Missouri, Kansas & Texas, it is understood, is now planning to extend its new line from Weldon northwest to some connection with an M. K. & T. line. When this connection is made, lumber traffic of the M. K. & T. ought to be very profitably increased. Since the Katy runs through a treeless country, it will afford a good market for this lumber, and the Wichita Falls lines will afford even a better new market. It is hard to overestimate the importance of the development of this lumber traffic, especially from the point of view of net earnings.

It will be seen from the map that the Missouri, Kansas & Texas does not have tracks of its own into some of the most important cities on its lines, but has trackage rights. The terminal problem of the M. K. & T. five years ago was a

serious one, but within the last few years the company has bought or acquired its own terminals in Kansas City, St. Louis and at some other places where it had not previously had its own terminals. The contracts for the trackage rights into these cities are all long term contracts. Most of them are for upwards of 100 years. Moreover, these contracts are favorable in a number of cases, so that instead of being seriously hampered by the lack of its own tracks into Kansas City and into St. Louis, the M. K. & T. is really paying in the form of rental only about half of the fixed charges that it would have paid if it had built and owned these lines itself. At San Antonio, however, the Katy has no terminals of its own, and here suffers the full disadvantage that any road suffers which has to get into a competitive city over another road's track and has to use the other road's terminals.

Crop conditions in the Katy's territory are better than they have been for years, so that there is every indication that the road will have an opportunity to earn a considerably greater gross this year than it did last year.

The ratio of transportation expenses to gross earnings in 1912 was 41.32 per cent., and in 1911 was 39.25 per cent., comparing with a transportation ratio to revenue on the Frisco in 1911 of 36.46 per cent. The revenue train load on the M. K. & T. was 241 tons, an increase of 15.63 tons over 1911; but the total train load, including company freight, which after all is a better test of operating efficiency, was 273 tons in 1912, an increase of but 6.79 tons, or less than 3 per cent., over 1911. The roadbed and bridges are in condition to handle a very considerably heavier train load than 273 tons. Some additional heavy power will probably be needed, and this power is to be provided through the purchase of some Mikado locomotives. The management has adopted as standard 85-lb. rail, and in 1911 there were 103 miles of this new 85-lb. rail laid. It would seem that there is an opportunity here for an operating man of the caliber of Mr. Schaff to make improvements in operating conditions which should very materially increase new earnings, even without a heavy increase in gross business; and, as was pointed out, the chances for a considerable increase in gross within the next year are particularly good.

Besides this problem of the unduly high cost of transportation, or possibly directly connected with it, is the fact that the Missouri, Kansas & Texas has a rather large proportion of its mileage lying in Texas. It is the common experience of roads operating part of their mileage in Texas that the Texas lines cannot be made to pay, and this has been the experience of the Katy. There have been continual disputes between the Texas commission and the roads operating a part of their mileage in Texas as to how revenues and expenses are allocated as between lines in Texas and lines in other states. Mr. Schaff comes to the M. K. & T. with an open mind in this regard, and can meet the Texas commission without the drawback of any former misunderstandings or remembrances of injustices. He has begun a thorough investigation of why these Texas lines have not paid, and from the result of this investigation it may quite possibly follow that the Missouri, Kansas & Texas will be able to find a still further direction in which it can apply its energies toward increasing net earnings.

The following table shows the results of operation in 1912, as compared with 1911:

	1912.	1911.
Mileage operated .....	3,399	3,395
Freight revenue .....	\$18,100,906	\$18,184,664
Passenger revenue .....	8,220,409	8,923,259
Total operating revenue .....	28,186,719	29,065,294
Maint. of way and structures .....	4,129,256	3,900,643
Maint. of equipment .....	738,928	742,628
Transportation .....	11,647,573	11,409,361
Total operating expenses .....	21,205,849	20,606,516
Taxes .....	1,060,181	1,005,649
Operating income .....	5,885,363	7,446,525
Gross corporate income .....	6,242,759	7,878,218
Net corporate income .....	17,168	1,773,706
Dividends .....	521,635	521,020
Surplus .....	*504,467	1,252,686

\* Deficit.



## Letters to the Editor.

### TENDER DERAILMENTS.

PITTSBURGH, Pa., October 18, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In G. E.'s discussion on tender derailments in the *Railway Age Gazette* of October 11, 1912, page 667, he states: "Now the treatment seems not to be clear, probably because the application of some of the principles *are assumed to be understood*." (Italics mine.) He states further along in his discussion that, "The stored energy, then, gives no indication of the force acting only when considered in connection with the distance through which that force acts in bringing the body to a stop. Since the velocity of the wheel is practically unaltered, it follows that the expression  $\frac{wv^2}{64.4}$  gives no indication of the reaction on the rail," etc.

I do not agree that "the velocity of the wheel is practically

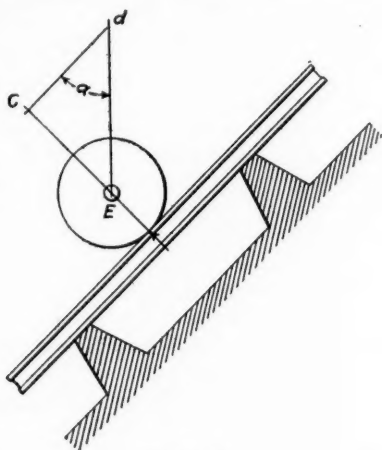


Fig. 3.

unaltered." It is altered. The wheel striking the obstruction is, at the instant of meeting the obstruction, impeded in its progress and moves on at a lesser velocity; the center plate of the truck having almost an infinite force back of it, moves on without perceptible reduction in velocity, but the wheel at the other end of the axle from the one striking the obstruction is accelerated by reason of the center plate acting as a fulcrum against the retarding force of the obstruction. The average forward velocity of the two wheels is the same as the constant forward velocity of the center plate, but the difference in the wheel velocities is enough to slew the truck and spread the rails—the numerous derailments on straight track from rails spreading is evidence that it *does do it*.

My effort in the letter in the issue of September 27 was to place the matter before the railroad world graphically in such a manner that the busy man of affairs—the officials of railroads who decide whether this change or that is advisable—might see and understand enough to order an investigation of the subject. The elasticity of the roadbed and car structures is so variable as to make exact calculation of reactions and work done impossible.

In Figs. 1 and 2 accompanying the letter in the issue of September 27, the stored energy of 242,000 ft. lbs. is accurate. To stop the wheel in its forward movement requires the absorption of that energy just the same as if 242,000 lbs. were to drop vertically one foot. It is the energy of 2,000 lbs. moving at a velocity of 88 ft. per sec.

One-hundred-pound-rails are subjected to a drop test of 2,000 lbs., dropping 18 ft. and striking the head of the rail midway between supports spaced 3 ft. apart. They must successfully withstand the test of this 36,000 ft. lb. blow. If the rail is set up

at an angle as in Fig. 3, and subjected to the drop test, the force of the blow will be reduced in the proportion as the sine of the angle  $a$  is less than 1, the resultant blow being in the direction of  $c-E$  when the center of the falling mass is at the intersection of  $c-E$  and  $d-E$ .

With the weight guided in a horizontal direction by a rail as in Figs. 1 and 2 in the issue of September 27, and a test section of rail set up at an angle with the line of movement of the weight, say having the center between supports of the test rail at  $E$  as in Fig. 1; then the conditions are identical in Figs. 1 and 3 if the weight of 2,000 lbs. is moving at the same velocity in each case. Fig. 2 is the same as Fig. 1, except that the angle at which the moving weight strikes the obstruction or test rail is much less, but the high velocity causes the intense reaction. The blow is in the direction of  $a-E$ , and can be resolved into its vertical and horizontal components.

The weight moving on a horizontal track differs from one falling vertically, in that a superimposed vertical load on the weight or wheel acts the same as if it were massed at the wheel center and increases the rail reaction directly as the weight is increased; thus we get back to my original proposition than an engine tender when moving at high velocity and rocking transversely of the tracks compresses the truck springs solid and causes vertical and horizontal reactions sufficient to cause derailment by spreading the rails or breaking something.

On pages 512 and 513 of the September 20, 1912, issue of the *Railway Age Gazette*, under the heading of "Train Accidents in August," 15 derailments are recorded, 14 of which were passenger trains causing 23 deaths and injury to 199 persons. Eleven of these derailments have their causes *unexplained*. Two of the explained ones were from broken rails. There are thousands of derailments which cause only property loss and are not reported.

Stop the excessive rocking of cars, which action throws nearly all of the load on half of the springs, compressing them solid, and you prevent practically all of the straight track derailments, you reduce vertical reactions and cut down unbalanced horizontal retarding forces on wheels until the stresses are within the strength of track and truck structures.

Setting side bearings in beyond the gage line of the rail, as suggested by Curtis Dougherty in his letter on page 667 of your

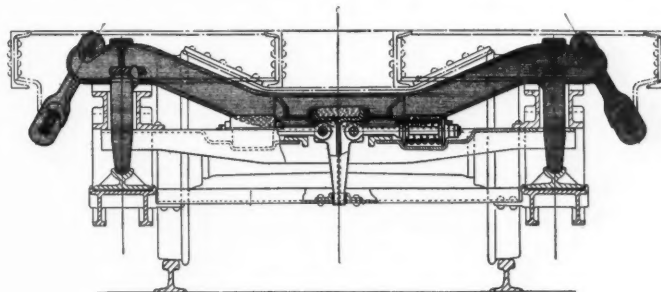


Fig. 4—An Improved Type of Tender Truck.

October 11 issue, has not proved to effectively prevent such derailments on many railroads having their car and tender side bearings so located. It is a known fact that certain railroads having their equipment with side bearings spaced at not over 50 in. centers, or well within the space between the rails, are still troubled with numerous derailments. This only serves to intensify transverse rocking.

Since writing the above, the October 18, 1912, issue of the *Railway Age Gazette* has been received, and I note communications therein regarding tender derailments from J. L. Campbell of the El Paso & Southwestern, and J. F. Walsh, recently of the Chesapeake & Ohio, each giving his remedy. Mr. Campbell's low center of gravity tank is undoubtedly a move in the right direction if other conditions will permit of it. There is a limit to narrow spacing of side bearings. Approaching the ideal you

would have no side bearings at all, but what about stability from centrifugal force, etc.?

With the side bearings located at 36 in. centers, a resultant force line from the center of gravity of the tank and truck combined (say 72 in. above the rail) to the rail, will pass through the center of this side bearing, which appears to give the tank upon the side bearings a stability equal to that of the truck upon the rails; however, as the center of mass of the tank alone is much higher, a similar force line drawn from this center of mass to the rail will pass a considerable distance outside of the side bearings so located, and this condition cuts down the factor of stability. But why juggle with the danger point, when a tank or car can be carried on a wide base with no side bearing clearance, with perfect stability and ideal flexibility for all track conditions?

Fig. 4 illustrates a type of truck and body support which does this. The shaded portions indicate the parts that are effective in distributing the load evenly to all wheels when passing over uneven track. This cross section is of an engine tender truck and underframe, and differs from those described in the March 22, 1912, issue of the *Railway Age Gazette*, in that this truck is designed especially for heavy loads and high speed.

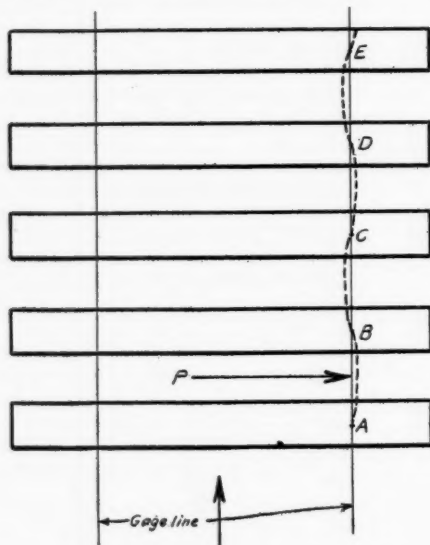
E. W. SUMMERS,  
President, Summers Steel Car Company.

#### WAVE ACTION IN A RAIL UNDER AN ENGINE ON A GRADE.

CHICAGO, Ill., September 15, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

While going through the files of the *Railway Age Gazette* recently I came across a letter in the issue of November 20, 1908, signed "Assistant Engineer" in which the writer stated that he had noticed in going up a grade which was steep enough to reduce the speed of the engine to four or five miles an hour, that the rails immediately ahead of the engine clicked against the inside spikes. He seemed to think this might be dangerous, as it lessened the gage, and he offered this as a possible explanation



Wave Action in a Rail Under a Locomotive Exerting Full Power.

of some derailments. At that time the editor seemed to think that this was an error of observation. The following is submitted as an explanation of why the rail would strike against the inside spike ahead of an engine which was working at full cut off on a grade which was steep enough to reduce the speed to three or four miles an hour, but in which case the rail should not be loose enough to give a clicking sound.

When the right hand crank is at 90 deg. and the left at 0 deg.

the maximum thrust on the right hand side tends to swing the front of the engine to the left, the wheels of the front truck striking against the left hand rail. When the right hand driver cranks are at 180 deg. and the left at 90 deg. the truck will be swung to the right, striking against the right hand rail. This oscillation of a locomotive is familiar to all, but would not be noticed by most people except at slow speeds when the engine is exerting its maximum power.

The blow delivered in this manner will impart a wave motion to the rail as shown in the diagram. If we apply the "theorem of three moments," this will be added to by the wheels back of the forward pilot wheel. The force P in the sketch will tend to bend the rail between A and B, as shown. At B the spike will prevent further outward movement and the force will tend to bend the rail concave from B to C. As the wheel moves from B to C the rail will move to the left until it strikes the spike at C. C will then become a fixed point and, of course, will produce convexity from C to D, striking the spike at D, etc. A man in the pilot would hear the click and notice the movement to the left at C.

PAUL M. LA BACH,  
Assistant Engineer, Chicago, Rock Island & Pacific.

#### TO WHOM SHOULD THE ROAD FOREMAN REPORT?

NEW YORK, September 28, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In some railway organizations the road foreman of engines acts solely as a representative of the mechanical department; in others he reports to the superintendent, who in some instances has jurisdiction over the master mechanic.

I was brought up in the mechanical department, and while occupying a position as master mechanic I found the road foreman of great assistance. He reported directly to me; I reported only to the superintendent motive power, and to acquaint the division superintendent with the real condition of the power was an unpardonable sin. Big mileage between shoppings at low cost for repairs and without engine failure reports was what we wanted, and to this end we intimidated engineers until they obscured everything except the loss of a cylinder or driving wheel.

We counteracted the bad effect of a leaking steam pipe joint by the prompt application of bushings and splitters in nozzle tips, for the fuel bill was the least of our troubles—that was a transportation charge—and so we proceeded swimmingly. But now I am on the fence and waste in one department appears as seriously objectionable as lack of economy in the other, and I see very plainly that my former views were narrow. I was following the line of least resistance, which is quite natural when one is subjected to the varied and numerous troubles with which every master mechanic is familiar. But the road foreman! He knew that many of the engines were unfit for effective or economical service. There were pounds which he knew would result in broken frames, and leaks which put many of our enginemen under the doctor's care, but he was representing the mechanical department and was faithful to the insane ambitions and methods of his immediate superiors. Such conditions exist now and for the benefit of all, corrections should be made.

In my opinion the promotion of the road foreman to the position of assistant superintendent, with authority to remove from service any locomotive which is not in condition for safe, efficient and economical service will result in most desirable changes in shop and engine house practices. A road foreman of large caliber, endowed with responsibilities and authority as outlined, can in my opinion do more to promote economy in fuel, real economy in repairs and general satisfaction among officials and enginemen than can be accomplished by any other adjustment of the present organization.

I hope you will give me the benefit of your views and knowledge gained by the experience of others.

W.



# IS THERE REALLY A CAR SHORTAGE?

Better Cooperation from Shippers and Greater Efficiency  
from Use of Motive Power Would Greatly Improve Conditions.

By N. D. BALLANTINE,

Assistant to Second Vice-President, Rock Island Lines.

During a period of heavy demand, have the railroads of the United States, in obtaining a maximum of 25.6 miles per car per day, reached a point which would indicate that they are getting as much as they can reasonably expect out of their freight equipment? It seems not, to me; and the statistics of the Committee on Relations Between Railways of the American Railway Association for the past few years, showing the car surpluses and shortages, indicate that there is a very large amount of money invested in surplus cars. The last alleged car shortage occurred in the fall of 1907. The maximum gross ton mileage moved during that period was in October, when the average miles per car per day reached  $24\frac{3}{4}$  miles. If this be so, then why this hue and cry about "car shortage?"

Having had some direct personal experience with the distribution of freight equipment and a knowledge of the general conditions existing on railroads in the central west, during and subsequent to that period, I am confirmed in the belief that there was not then, has not been since, and is not now a car shortage in the true sense of the term. By this I do not mean that the shipper has been able to load his wares as soon as desired; but until a greater utility is obtained from the freight equipment, I am inclined to the belief that the trouble lies elsewhere than in the supply of freight cars.

The question which naturally arises is: If there is not a shortage of cars, what is the reason why shippers cannot load out their wares as promptly as desired? The answer to this question covers a wide range and embraces a large number of factors, the principal of which it may not be amiss to call attention to. At the same time it might be well to discuss the question as to what is an economical car supply for the roads as a whole to maintain, as the cost of owning and maintaining a surplus falls upon the public at large. It should be borne in mind that such cost cannot be measured by considering the cars alone and the interest, depreciation and maintenance thereon, but that for each additional car owned there must be supplied yard and track room, together with additional facilities for shopping and repairing; and the interest, depreciation and maintenance on such facilities, as well as on the car, must be considered.

It might be well to discuss first some of the factors over which the shippers have control, and later those over which the railroads have control. In some detailed statistics, which will be given later, it will be found that in October, 1911, which was the month in which the railroads moved the maximum tonnage of that or any previous year, there were 62 cars per freight engine owned, and but 15.5 cars hauled per freight engine day, estimating that each engine made an average of one hundred miles a day. From this it is evident that the low average mileage per car per day is due to the fact that the car really moves in a train, over a one hundred mile division only once in every four days. When consideration is given to the time which is allowed to load and unload a car, that is, the minimum of 48 hours from the first 7 a. m., after placing, which will in practice average two and a half days, and to the time allowed for unloading, which is the same, together with a 24 hour delay for reconsigning privilege, to say nothing of the unlimited time allowed for loading at coal mines and (in certain sections) the unlimited time allowed on unbilled coal or coke, it should be quite apparent to any one that under the existing conditions, with present demurrage rules, average agreements, etc., the car may be and is, in reality, in the hands of the public much the larger part of the time. Instead of the railroads using the vehicle for moving the freight the shippers are using them

as warehouses, so to speak, presumably because it is cheaper for them to hold cars and load out their wares as manufactured, than to incur the expense of stocking and double handling. The latter process would undoubtedly load and release the equipment more promptly. There are many shippers who do equip themselves for the prompt handling of their freight, and these are a benefit both to the railroads and the public at large. But what about those who do not? Would it not be to the interest of the public at large to bring about a reduction in the free-time allowance, rather than to burden it with additional equipment upon which interest has to be paid twelve months out of the year and which is really used only about three months? This would enable those who have provided adequate means for prompt loading and release of equipment to realize more on their investment and foresight.

There is another factor in which the public has a very prominent part, and that is the variation in the volume of business offering. The American Railway Association statistics, for the roads as a whole, show that this varies from the minimum to the maximum, by months, as follows:

1907.....	32.9 per cent.
1908.....	45.3 per cent.
1909.....	45.7 per cent.
1910.....	22.7 per cent.
1911.....	35.4 per cent.

It is fair to assume that had the railroads been able to move a heavier tonnage during the period of maximum demand, the disparity would have been even greater. There are many large systems, however, on which this variation runs eight or ten times as much as the general average. Coupled with this matter, of course, is the necessity for the railroads to find the labor to handle the increased traffic and take care of the track and equipment. This is not an easy thing to do. In the first place, they cannot afford to pay train and engine crews unless they perform some service, and with a heavy traffic, and the necessity of breaking in new engineers, firemen, conductors, brakemen, and other employees, is it to be wondered that confusion should exist and increase in a much greater ratio than the volume of business offering? In the case of common laborers when there is a scarcity such as usually exists in the fall months, during harvest, what good would it do the railroads to outbid the farmer in wages paid and take the available supply? If the farmer does not harvest his crops there will be nothing to haul, and what is the need then for fixing up the road. So the railroads take what labor is left and make the best of it, endeavoring to move 75 per cent. of the year's crop in 25 per cent. of the time in which it is consumed. A good part of this heavy traffic comes at that part of the year when operating conditions are the most difficult and expensive to deal with.

Again, are the shippers utilizing the available space in the equipment to the fullest extent? W. A. Worthington, assistant director of operation and maintenance of the Union Pacific and Southern Pacific lines, in a circular letter dated June 15, 1912, addressed to members of the Per Diem Agreement, as an argument against an increase in the per diem rate to 45 cents per day, gives as his estimate of the cost of ownership of an average car in 1910, 32.29 cents per day, or \$117.85 per year. He also showed from reports of the Committee on Relations Between Railways that in 1911, as compared with 1907, the average ton miles of freight per car per day increased from 331 to 344, or approximately 4 per cent., while the tonnage per loaded car was 21.7 in 1911, against 20.3 in 1907, an increase of 7 per cent. During the same period, however, the number of freight cars owned





Estimating the average engine to have a tractive power of 30,000 lbs. and to cost \$15,000, and that the average cost of a freight car is \$1,000, it will be seen that the cost of one engine is about equal to that of fifteen freight cars. This, of course, does not apply to the modern engine, which I believe is a more economical machine than the old one. A Mikado or a consolidation locomotive costing, say, \$25,000, is capable of hauling more than 25 cars on an average.

It occurs to me, that, as a general proposition, there is a lack of reliable data compiled currently showing definitely and in

summary of the delays to power at terminals and between terminals; the Rock Island lines have adopted a set of blanks which correlate the entire information, and which at a nominal expense, can be placed in the hands of the division superintendents within eight or ten hours after the close of the calendar day. Briefly, the plan provides for a form to be made up by the mechanical department showing the engine number and the time in its possession of all the engines in the various roundhouses. The report is to be signed jointly by the roundhouse foreman and yardmaster. Another form covers the terminal

[illegible]

**General Form Tabulating All Delays During 24 Hours to Each Engine on a Division.**

detail what is being done with the motive power while in the possession of the mechanical department, and in the hands of the transportation department at terminals and on the road between terminals; and inasmuch as information covering the various factors is generally compiled by most railroads, it is not correlated as completely as it seems to me it should be. With this end in view and with the further idea of placing before the men on the ground, that is, the division superintendents, full and complete information in tabloid form, in order that they may, at a glance, get a clear view of the utilization made of their motive power, of the train and engine miles, together with a

delay, indicating the engine and total time held at terminals, with an analysis showing the various causes of delay. Another form for the conductors, to be made up in compliance with the Interstate Commerce Commission's rulings, covers the hours of service and delays in transit. All of the blanks have telegraphic symbols at the head of each column so that the data can be received in the despatcher's or superintendent's office on a large blank and summarized at original writing if desired; or it can be received on the regular form just as the ordinary delay reports of trainmen are received and tabulated from that. A space is also provided showing the terminal and road overtime; the

[illegible]

This report to be made in duplicate, original to be filed for transmission by wire as soon after midnight as practicable, after which it should be mailed to Superintendent of Division on first passenger train. Duplicate to be retained by Yardmaster.

"Time Received" should agree with "Time Delivered" by Mechanical Department as shown on their Form CT 80 A, Column G, and "time of departure" should agree with the train register as to the time engine left Terminal.

Under heading "Analysis of Detention" show in proper columns the number of hours and minutes power is actually held for the reasons shown. It is assumed the Chief Despatchers will advise party in charge of power at Terminals when engines, after being O. K'd. are not ordered with reason therefor shown, so as to enable report to be properly made up, and put party in charge of power in possession of full information concerning its detention.

The various headings are self-explanatory.

Column headed "Between Call Time and Departure" represents the yard delay after train was called to leave. Analysis of this delay is shown on Conductors' Train Report form CT 80 C.

**Form Used to Show the Time Engines Are Held at Terminals and the Cause.**





hours in shops for classified and running repairs, as well as the surplus power, and enables the superintendent to account for 24 hours for each engine assigned to his division. Samples of the four forms are given herewith, together with the instructions which appear thereon. It seems to me it goes without saying that such information is not only valuable, but necessary in order to get at the real power situation and the actual factors which interfere with the practical operation of the various divisions.

In addition to the analysis of motive power and train performance it is very essential that complete and prompt yard checks be taken each day, that the information be summarized and that prompt and intelligent action be taken in connection with the local as well as the general distribution of cars. There are many times when it is necessary to run empty cars away from loads in order to supply a territory which does not ordinarily receive enough inbound loads to take care of its outbound shipments. Then, again, it may be necessary to take cars away from a congested territory where limited facilities, or storm or other conditions, prevent the free movement of cars. When such conditions prevail, cars should be diverted into a territory where they can be put into circulation. Of course, these conditions are apparent and well known to all practical car distributors, but when such action is taken it frequently results in bringing down condemnation upon their heads from shippers from whom the empties are taken, or from whose territory the cars are moved.

### THE RAILWAY LABOR SITUATION.\*

BY DR. EDWARD S. MEAD,

Professor of Economics, Wharton School of Commerce and Finance,  
University of Pennsylvania.

The most important problem before the American people is the problem of railway development. America is still an undeveloped country. Three-fourths of the United States, industrially considered, lies north of the Ohio and east of the Mississippi river. The West and South are yet in the infancy of their business development.

The realization of the immense possibilities of this country must depend upon the extension and development of our railroad facilities. It has been estimated by men whose opinions carry great weight, that at least \$1,000,000,000 each year for years to come should be spent in railroad building and rebuilding. Some of this new construction will be immediately profitable. On the largest part, the profits will be deferred. That vast expenditure which is demanded by considerations of public safety and commerce may never be profitable.

In recent years railway construction has lagged behind the progress of the industries. A present indication of this fact is the impending shortage of railway equipment. A business revival has just begun and already the inadequacy of the transportation system to carry the expected increase in traffic is conceded. The railroads are unprepared, not because they have not foreseen the return of good times, but because of certain factors in the situation which make directors hesitate to invest great sums of money, even when their credit permits great sums of money to be raised.

This feeling of doubt and distrust of the future which is everywhere encountered among railway officials and financiers is due, first, to the evident determination of the Interstate Commerce Commission not to allow any general advance in rates; and, second, to the increasing pressure of the railway brotherhoods for higher wages.

With the first condition we are not now concerned. You are entirely familiar with the arguments on both sides. If railway expenses are not largely increased, the present scale of rates will yield satisfactory profits. But from the attitude of railway labor railway expenses will increase. The an-

nounced determination of the railway organizations to increase the wages of their members is, from the standpoint of the railway and of the country as well, far more serious than the unyielding attitude of the Commerce Commission.

I ask you to consider the nature of the railway industry. It is a trite saying, but a true one, that transportation is the life-blood of commerce. The specialization of different regions to those industries in which, from the character of the population, the natural resources, or the proximity of steel, has been carried so far in this country that free and continuous interchange of commodities is indispensable, not only to industry but to existence. Suspend the operation of the railroads of the United States for one week and the resulting damage would be almost incalculable; it would be measured not in money and in goods alone, but in human suffering and human life. How many cities in this country are provisioned for one week? How long would the supply of fuel and material for the mills and factories suffice if fresh supplies were interrupted? The answers to the questions are furnished by every snow storm which ties up the railroads even for a few days. Every business in the region feels the effect; the whole population suffers inconvenience and the business losses are heavy. How much more serious would be the effect of a general and a protracted suspension of the railroad! It would be a national calamity comparable to the effects of war or pestilence, a catastrophe which it is almost unthinkable that any body of men, for their own ends, however worthy and reasonable those ends might be, would combine to bring upon the country. Or, to look at the matter from another standpoint, it is even more unthinkable that the responsible heads of the railway companies would allow a general suspension of operation to take place if the most extreme concession on their part could prevent it.

Into this situation of absolute dependence upon the continuous operation of the railroads, a situation fraught with the possibilities of national disaster, enter the brotherhoods with their periodic demands for increase in wages, reduction in hours, and more favorable conditions of employment. One set of these demands made by the Brotherhood of Locomotive Engineers is now being considered by a specially appointed board of arbitration. As soon as this difficulty is settled—and from past experience a portion at least of the demands of the union will be granted—the never-ending controversy will be transferred to some other section or some other organization. The pressure of the unions upon the railroads is increasing and unceasing.

In these discussions and contests organized railway labor possesses a predominant advantage. Its members know just how valuable their services are. They know that the trains must run and that no men outside their organizations can run them.

Consider for a moment the extent of their advantage by comparison with labor contests in other fields. If the anthracite miners strike, the country suffers, but there are ways of escape for the consumer. He can turn to bituminous coal or gas, and there are reserves of anthracite to draw upon. If the bituminous miners strike, the users of bituminous coal can live for a time on their own reserves, or they can change their grates to burn anthracite. The last great strike in the iron and steel industry had little more than a local significance and effect.

Let the railroad men strike, however, and as 1877 and 1894 showed, the entire country feels the blow; every class, every community, every business is affected. The four railway brotherhoods hold in their hands the prosperity of the United States. Because they possess an absolute monopoly of the skilled labor necessary to conduct the business of transportation, they have the power to cripple every business in the country. Skilled railway operators cannot be replaced by non-union men. For locomotive engineers or firemen

\* An address before the Traffic Club of Pittsburgh, on October 14, 1912.

there are few substitutes; if they cease to labor, the trains cease to move, commerce comes to a standstill, factories close, business staggers and stops. We all remember the effect of the suspension of cash payments by the banks in 1907. The situation at that time gave but a faint indication of the damage which the country would sustain by the suspension of the railroads.

Railway managers know this, railway employees know this. In every controversy over wages, hours of employment, or working conditions, the unique position of the railway as an indispensable public servant, and the extraordinarily powerful position of the railway employee as the master of that public servant, are present in the minds of the contestants. Such a contest is unequal; the men have all the advantage. They can throw the railroads into bankruptcy and the country into ruin, and they know it. They know further that the railway managers will not be allowed by public opinion, even if their own dispositions set in this direction, to force the issue. They must make concessions; they must, in every contest, yield something. All, therefore, that is required is for the men to return again, and yet again, with ever-increasing demands, and they can obtain the entire surplus revenue of the railroads.

I do not claim that the railway employees will carry their demands to this extent, or that the desire to confiscate the dividends of the railway stockholders has ever entered the minds of their leaders. I do claim, however, that they have it in their power to advance their wages to the point where the present scale of dividends can no longer be maintained. When Lord Clive, on his return from India, was accused in the House of Commons with the practice of extortion, he replied, "Sir, when I think what I might have taken, I am astonished at my own moderation." With equal justice, the railway brotherhoods can point to the evidence of their moderation in the fact that the railroads can still pay dividends and lay aside something for their surplus accounts. This situation is, however, fraught with possibilities of peril.

So far as the Interstate Commerce Commission is concerned, the railroads have little to fear. If the Commission will not sanction a general advance in rates, it is equally unlikely that it will order their general reduction. Railway rates, the products of innumerable adjustments and compromises, tend constantly to stability. Each year the difficulty of change because of the wider reaching consequences of change, becomes greater. Adjustment between localities, reductions in special cases may be made; but the danger of a general reduction in rates is slight.

Not so with the labor situation. The representatives of organized labor have set no limit to their demands, short of the utmost ability of the railroads to pay; railway wages in their opinion will never be high enough. They are willing to endorse the railroads' demands for higher rates, out of which higher wages might be paid, and, in fact, this proposition has been seriously advanced by some of their leaders. They will not, however, concede that railway wages can be limited—that, for example, the locomotive engineer should be restricted to a maximum of \$80 per month, a salary upon which he can purchase his house and send his children to the high school. They desire that his wages should rise to \$250 per month, upon which he can send his children to college. No matter how high railway wages go, they are still too low, in the opinion of the railway man, for his necessities, his responsibilities and his deserts.

And, after all, if only these demands can be reconciled with the necessities of the country for a full development of its resources, and with the just claims of the railroad stockholders and creditors, why should the railway employee be denied his wish to rise to a higher plane of existence? Every day millions of people trust their lives to the men who run the trains, walk the tracks and operate the signals and switches. What compensation will be considered too much

for the faithful performance of this trust? What public servant has a more responsible position than the locomotive engineer? Who has charge of a larger amount of property? Upon whose competence and vigilance depend so large a number of human lives?

Let us come to the issue of the question: How can the demands of the railway men be met—demands which they have it in their power to enforce, however gradually, with whatever degree of conservatism they go about enforcing them—while at the same time the needs of the country for additional capital may be met? Under present conditions the profits of the railroads, present and prospective, are not large enough to induce a sufficient amount of investment to meet the national requirements. Before the year is out, in the opinion of those best qualified to judge, the country will have abundant proof that in late years sufficient money has not been spent upon railway facilities. Unless the outlook for railway profits becomes more favorable, these facilities will become increasingly inadequate. What, then, is to be done? Shall rates be advanced? How will this mend matters? If rates go up and wages rise with them, shippers and consumers are burdened and railway credit is not improved. It is by following no such vicious circle that the solution of the problem is to be found.

In my opinion—and I offer this suggestion with diffidence, because I know how much easier it is to describe a situation than to suggest a practical remedy—we shall never reach a permanent solution of our transportation problem, we shall never place this great industry in a position from which its steady progress is assured, until railway labor can be brought to realize and recognize by its acts that the railroads are entitled, in the words of the Supreme Court, "to a reasonable return upon a fair value of their property employed in the public service." And this reasonable return is not to be the rate of interest on the best first mortgages, but such a rate of profit, averaging good years with bad, as will attract capital into railroad securities. More than this the railroad stockholder does not and should not claim; less than this means an arrested railway development, a slow and halting industrial development, a condition of prolonged business stagnation, broken only by fitful gleams of temporary prosperity.

I do not know how this recognition of the claims of railway capital to proper consideration can be brought about; I hope that it will come as a result of conference and conciliatory discussion. I believe that organized labor in the railway industry represents the highest level of efficiency which organized labor has anywhere attained. The railway employee fully deserves his title of the "aristocrat of the labor world." His is not merely an aristocracy of high wages, but an aristocracy of competence, discipline, fidelity to duty and good citizenship. If the solution of the problem can be worked out by the railway men in conference with their employers, it will be indeed a fortunate result.

If, however, the leaders of railway labor are unable to see that they have a national obligation to perform, that along with their vast power goes a corresponding responsibility, that they must not press their demands for higher wages to the point of making railway investments unattractive, and so restricting necessary railway facilities, then they will be made to realize, and that at no distant day, that there is a power in this country that is greater than the power of organized labor, the irresistible power of an aroused public sentiment, and that the interests of no class, no matter how valuable the services performed by that class, can be allowed to stand in the way of the interests of the American people.

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NEW LINE FOR NEW SOUTH WALES.—The first sod of the line from Muswellbrook, New South Wales, to Merriwa was turned by the minister of works on June 1.



# CONSTRUCTION OF THE ROCK ISLAND SHORT LINE.

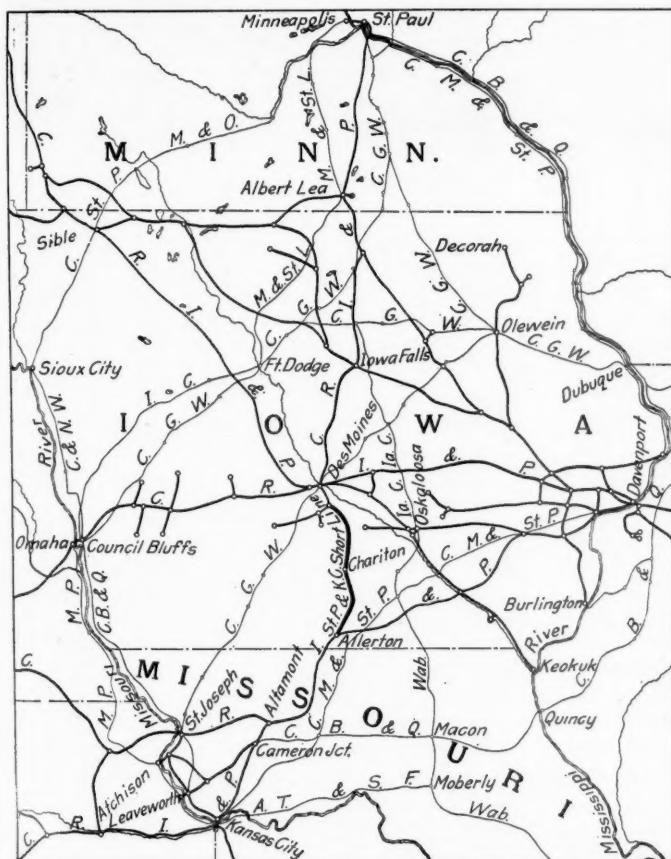
Description of the Building of the Closing Link in a New Direct Route Between Kansas City, Mo., and St. Paul, Minn.

The St. Paul & Kansas City Short Line, which, exclusive of directors' shares, is owned entirely by the Chicago, Rock Island & Pacific, was organized in 1911 to establish a short direct connection between Kansas City and the Twin Cities by securing the ownership of the St. Paul & Des Moines and building a new line from Carlisle, Ia., to Allerton. The St. Paul & Des Moines, which was organized in 1903, purchased the line of the Des Moines, Iowa Falls & Northern from Des Moines to Iowa Falls,

to haul such traffic by an indirect route as far east as West Liberty, Ia. This line will also make possible a direct north and south haul between the Twin Cities and the Gulf of Mexico entirely over Rock Island Lines, which may be of importance in view of the expected development of such traffic following the opening of the Panama canal and will be of very direct importance in relation to the fruit and vegetable traffic from the Southwest which requires expedited service.

While the new line has been built principally for the purpose of handling through traffic, it will also develop an important local traffic. The line of the St. Paul & Des Moines passes through a rich agricultural section. There is also a large acreage of coal land tributary to the line, including two commercial mines already operating at Enterprise, 14 miles north of Des Moines.

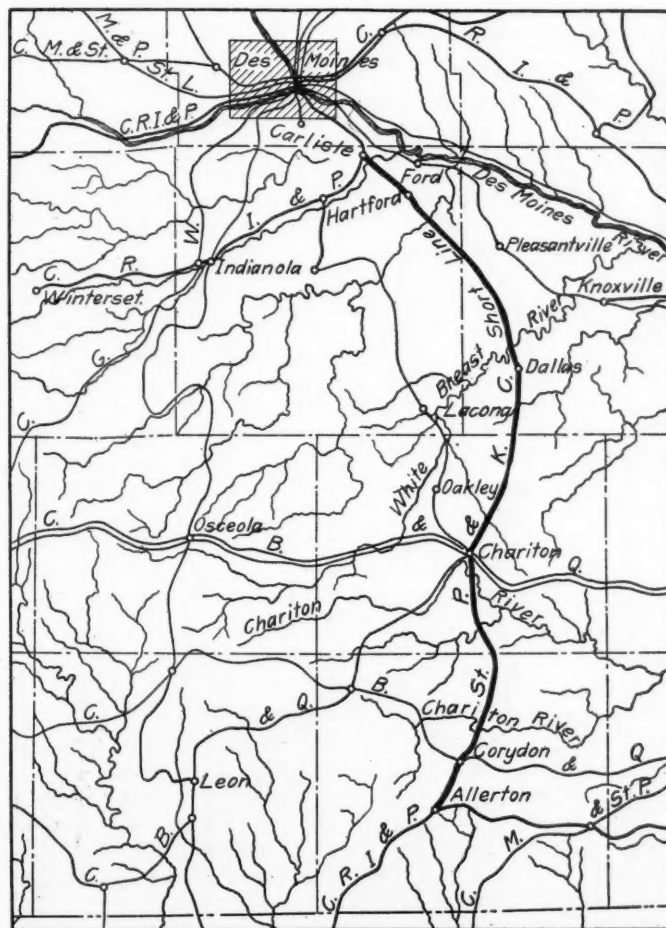
Mason City is an important shipping center, containing several jobbing houses, eleven brick and tile works and the plants of the Northwestern States Portland Cement Company and the Lehigh Portland Cement Company. The latter two plants have a combined capacity of 15,000 barrels a day. The line now



The St. Paul & Kansas City Short Line and Other Railways Connecting Kansas City and St. Paul-Minneapolis.

70.44 miles, and extended it from Iowa Falls to Mason City, 43.8 miles, in 1908. With the terminal trackage at Mason City and Des Moines this company operated 121 miles of line. A through train service has been opened between Minneapolis and Des Moines, using this line to Mason City, the Chicago, Milwaukee & St. Paul from Mason City to Plymouth Junction, 7.3 miles, and the Rock Island line, from Plymouth Junction to Minneapolis, 144.4 miles. The new service to be established by the St. Paul & Kansas City Short Line will use the same route from Minneapolis to Des Moines. South of that point it will operate about 10½ miles of the Winterset branch of the Rock Island to Carlisle, Ia., from which a new line is being built south to Allerton on the Rock Island's main line between Chicago and Kansas City. The Carlisle-Allerton section is about 65.1 miles long and the distance from Allerton to Kansas City on the present line is 152.5 miles, making a total distance of 501 miles from Minneapolis to Kansas City, which is 43 miles shorter than the present shortest line between these points.

By reducing the distance between Kansas City and the Twin Cities, the Rock Island expects to be able to participate heavily in the through traffic for the Northwest, which is distributed from St. Paul and Minneapolis. Heretofore it has been obliged



Carlisle-Allerton Section of the St. Paul & Kansas City Short Line.

under construction from Carlisle to Allerton passes through a country which has not heretofore enjoyed adequate railway facilities, in which coal mining will produce the principal traffic. The Rock Island owns about 8,000 acres of coal lands near the middle of the section under construction which will furnish an important source of fuel supply when made accessible by the completion of the line.

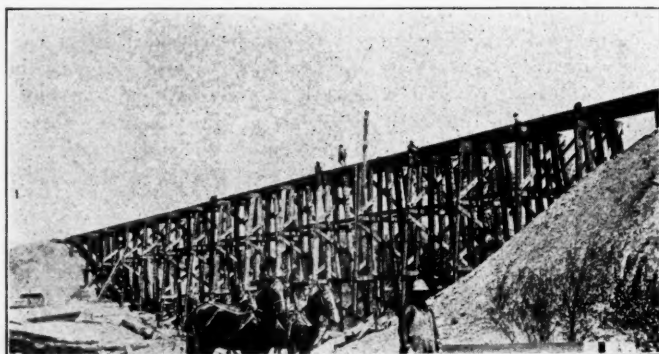
In addition to the freight traffic, the line presents interesting

possibilities for passenger traffic. A sleeping car service has been operated between Des Moines and the Twin Cities for the past six months, and it is expected that eventually a train may be operated from the Twin Cities with through cars for Omaha, Kansas City and California, connecting with the Rock Island Limited at Des Moines and with the Golden State Limited at Kansas City.

The operating headquarters of the First district have been moved from Chicago to Des Moines since the purchase of the new line on account of its central location with reference to the lines east of the Missouri river. In the interests of economical operation the present division terminal is to be removed from Albert Lea, Minn., to Manley Junction, Ia., where a roundhouse, yards and water service facilities will be built. Eventually the division headquarters of the Minnesota division may be moved to that point from Cedar Rapids.

In view of the high class of service which will be installed as soon as the section from Carlisle to Allerton is completed, the entire line is being put in excellent physical condition. The line now operated by the St. Paul & Des Moines has been considerably improved by the Rock Island, but it is planned to still further improve it by reconstructing some portions and by replacing a number of the bridges. The portion of the Winterset branch between Des Moines and Carlisle, which forms a part of the new line, is being entirely rebuilt, the work including grade and line revisions, the replacing of bridges and relaying of track. The new line south of Carlisle is being built to the Rock Island main line standards and when completed will be in condition to handle traffic economically. The new line is be-

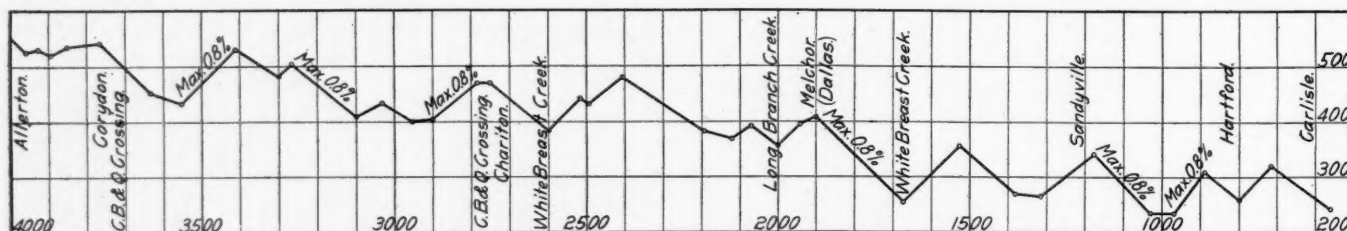
sated in both directions, and the sharpest curve is 3 deg., with spirals on all curves 2 deg. or sharper. In general the grade line is rising southward, the highest point reached, which is at the main line connection in Allerton, being more than 300 ft. higher than the lowest point on the line, which is near the Carlisle end. The maximum grade had to be used frequently in



Creosoted Pile Bridge.

both directions, and in some cases it was difficult to get a satisfactory location on this grade.

The roadbed standards called for an 18-ft. width on fills and 34 ft. in cuts, the latter width providing for use of steam shovels and grading machines, additional material for fills, reducing the chances of slides interfering with traffic and allow-



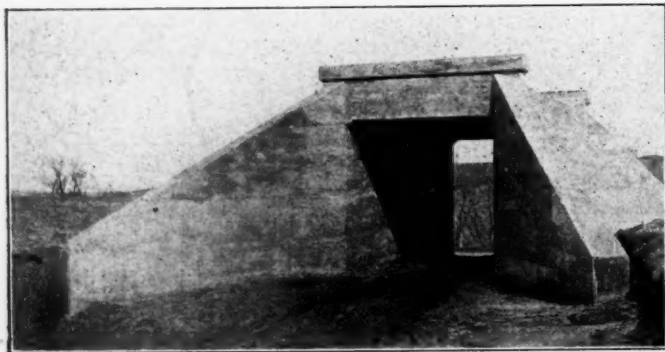
Condensed Profile of Carlisle-Allerton Line.

ing built as a single track road. The line crosses the general direction of drainage, the country being quite rough considering that it is scarcely more than 100 miles from the Mississippi river in the heart of an agricultural state. On the mile which includes the largest amount of heavy grading the earthwork moved totaled about 165,000 yards, with maximum cuts and

ing for possible future double-tracking. Practically all material handled is clay with some gravel and a small amount of rock. Standard slopes are 1:1 for heights up to 20 ft., from 1:1 to 1½:1 between 20 ft. and 30 ft., and 1½:1 for all heights over 30 ft. In general, the material stood up very well at this angle, only one or two fills causing any trouble. In several cuts, however, the sloughing was quite serious. Drainage was not difficult to secure in most places and no special problems developed.

Concrete culvert pipe in 36-in., 48-in. and 60-in. sizes are used for small waterway openings, with concrete box culverts for larger waterways and cattle passes, and trestles for long stream crossings and some of the undergrade highway crossings. Some of the highways are carried under steel girders resting on concrete abutments, and the overhead highway bridges are timber structures on framed or pile bents. The topography made it possible to separate grades at more than two-thirds of the highway crossings, and every effort was made to eliminate grade crossings.

The standard culvert pipe is made in two classes, one for fills up to 20 ft. and the other for fills between 20 ft. and 40 ft., this height being measured from base of rail to flow line. No concrete culvert pipe is used in fills higher than 40 ft. The cross section of the pipe is elliptical, the vertical diameter being 4 in. greater in the smallest size pipe and 9¾ in. greater in the largest size. The walls are from 4 in. to 7½ in. thick, depending upon the size of the pipe, and are reinforced by ¾-in. square bars placed longitudinally and ½-in. square bars placed circumferentially. The pipes are made in sections 8 ft. long for the 36-in. and 48-in. sizes, 6 ft. for the light design in the 60-in. size, and



Standard Cattle Pass.

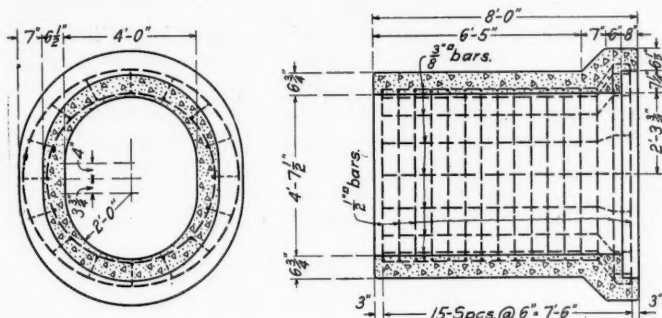
fills of about 50 ft., and at a number of points along the line there are short sections for which the yardage averaged considerably higher than the figure given. No large bridges are necessary as no important streams are crossed. There are 8,770 lineal ft. of bridge openings, most of which are wooden trestles with deck girders over the larger streams and over some of the highways. The maximum grade is 0.8 per cent. compen-



5 ft. for the heavy design in this size. The heaviest section weighs 5.9 tons. The concrete box culverts are of the standard design used on the Rock Island and are very similar to those built by several other roads.

All pile trestles were built to the Rock Island standard, using creosoted piling, posts and caps. In the structures which include girder spans a continuous trestle was first driven across the opening in order to allow track to be laid, and the girders will be placed as soon as they can be brought in by rail. The portions of the trestles which will be replaced by the girders are made of untreated material. The pile driving was done by three land roller drivers, one working from each end of the line and one near the middle.

The earthwork was handled by a variety of methods, various contractors using scraper outfits, heavy steam shovels and light automatic shovels, with both cars and dump wagons, and grading machines with both gasoline engines and horses. The



Details of Elliptical Concrete Culvert Pipe.

material was all comparatively easy to handle and no unusual methods were developed.

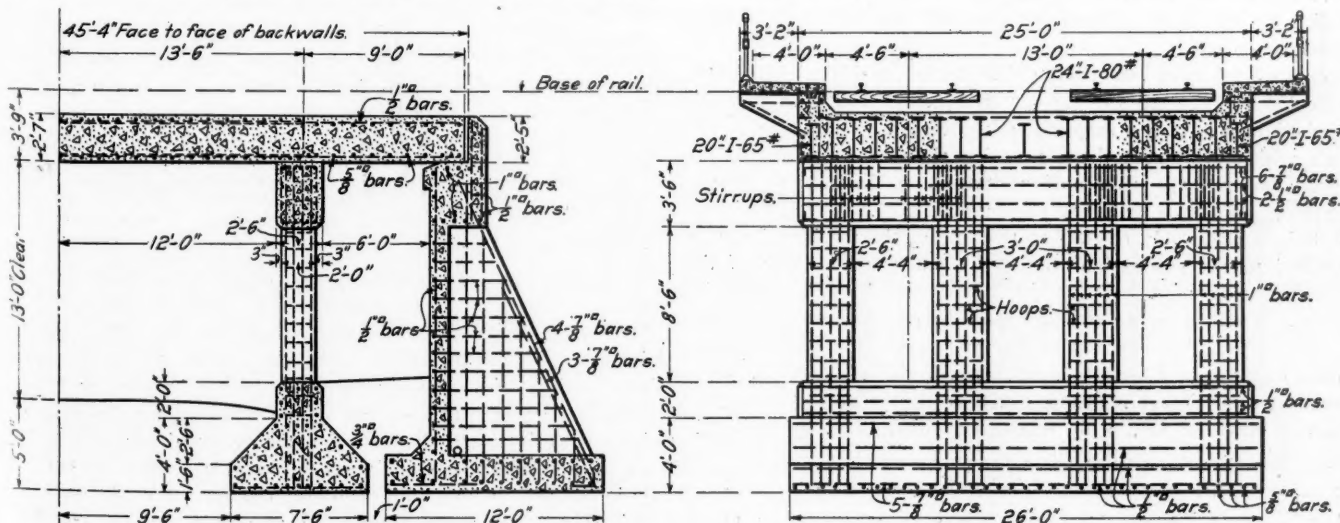
The hauling of bridge and culvert material and contractors' outfits was comparatively easy, as, in addition to the two Rock Island terminals, the new line is crossed by two lines of the Burlington and approximately paralleled by two others of the same road. The maximum haul necessary was 13 miles, the roads being in general very good. Bridge and culvert material was shipped to nine points, Carlisle at the north end of the new line, Ford and Pleasantville on the line of the Burlington east of the new road, Knoxville at the end of a Rock Island branch, Lacona and Oakley on the branch of the Burlington west of the new line, Chariton and Corydon where the new line crosses two branches of the Burlington, and Allerton, the southern terminal of the new line. One of the most difficult materials to haul was the heavy concrete culvert pipe. Short-coupled wide tread wagons pulled by six horses were used for this work, but on account of the steep hills and the great weight of the pipes

the hauling contractor who undertook to deliver these pipes had considerable difficulty, caused by the damage to roads, injuries to horses and accidents to wagons which caused several pipes to roll down into ditches and streams.

In the town of Chariton the line crosses three streets on subways. These structures have I-beam concrete floor slabs supported on reinforced concrete bents at the curb lines and reinforced concrete abutments. The two sidewalk spans are 6 ft. in the clear, and the roadway span is 24 ft. The details of a typical subway are shown in one of the drawings. The main wall of the abutment is only 15 in. thick, but it is heavily reinforced and is supported from the back by buttresses spaced 6 ft. 6 in. center to center. The bents have four columns each, two of which are 2 ft. x 3 ft., and two 2 ft. x 2 ft. 6 in. They are supported on a continuous concrete footing which is spread to 7 ft. 6 in. wide and are capped by a concrete beam 2 ft. 6 in. wide and 3 ft. 6 in. deep. The slabs have a minimum depth of 2 ft. 5 in., with eight 24-in., 80-lb. I-beams under each track, and 20-in., 65-lb. I-beams between tracks and in the parapets. The slabs also have bar reinforcement in both directions in both the upper and lower surfaces. Sidewalk slabs are supported along both sides of the subways on cantilever brackets cast on the floor slabs, the inner edge of the small slabs resting on the parapet of the large slab. In the construction of these subways 12 hours were allowed after the completion of the columns for shrinkage before the caps were placed, the bents were allowed to season 20 days before the slabs were cast, and the slabs were allowed to set 60 days before any live load was allowed on the structure. The upper surface of the slabs is sloped to drain the water over the back walls, and 4-in. drain tiles are provided on top of the abutment footings. The fills behind the abutments were required to be of gravel or other coarse material. A waterproof membrane protected by mastic covers the surface of the slabs, all joints between the ends of the slabs and the faces of the parapet walls on the abutments being filled with oakum and mastic. Along the edges of the slabs the waterproof membrane was carried up under the edge of the sidewalk slab and a watertight joint made by sealing the cracks with asphalt.

There are two railway crossings on the new line, both of which are with the Chicago, Burlington & Quincy. At the crossing in Chariton the Burlington is high enough to allow the new line to pass under its tracks easily. In Corydon, however, the Burlington is near the ground surface and a grade crossing was first considered. It was found, however, that by a slight realignment of the Burlington's tracks the grade could be raised to allow the new line to pass under, and this work will be undertaken. The structures for these crossings have reinforced concrete spans for two tracks.

The track standards for the new line call for 90-lb. rails,



Details of Subway Over Street in Chariton, Iowa.

creosoted hardwood ties and crushed rock ballast. A Harris tracklaying machine operated by company forces is being used for track construction. Passing tracks are 3,000 ft. long.

A supply of water for locomotives will be secured from three reservoirs that are being constructed about  $1\frac{1}{2}$  miles from the new line. Two of these will have a capacity of 125,000,000 gallons each, and the third will be somewhat larger. Earth dams with concrete core walls are used to back up the water in natural water courses. A coaling station will be built at Allerton, serving both the Missouri division and the Short Line.

The surveys for this line were begun in July, 1910. One party covered the territory very thoroughly with preliminary lines, and as soon as the location was decided upon the same party located the line north from Allerton. It was desired to hurry the work as much as possible, however, and another party was started south from Carlisle. These two parties met in May, 1911. Estimates were already well in hand and contracts were let during the same month. A construction office was established at Chariton and a good start was made during the summer of 1911. The line is now practically completed and will soon be ready for operation. The rapidity with which the surveys and construction work have been carried on is largely due to the tact and judgment shown by the railway company in dealing with property owners and residents along the line. As an evidence of the good will that prevails, only four condemnation suits were required to secure the necessary right of way; two of these being against non-residents and one against an insane man. There has been very little delay in getting road crossing and under-pass agreements settled, with the result that the construction work has been materially accelerated.

This work is being done under the direction of J. B. Berry, chief engineer of the Chicago, Rock Island & Pacific, and J. C. Beye, locating engineer. The late W. C. Beach was in charge of construction until his death on August 23, when he was succeeded by J. W. Waber. The McArthur Brothers Co. are the contractors for grading and bridging.

### RAILWAY ELECTRICAL ENGINEERS' ASSOCIATION.

The fifth annual convention of the Association of Railway Electrical Engineers was held in the Auditorium Hotel, Chicago, October 20-25. F. R. Frost, electrical engineer of the Atchison, Topeka & Santa Fe at Topeka, presided. The secretary-treasurer reported a cash balance of \$1,044 and a total membership of about 550. During the first day of the meeting about 175 members registered.

#### DATA AND INFORMATION.

A report on this subject was submitted by a committee of which E. W. Jansen (Ill. Cent.) was chairman. Following is an abstract:

One of the most important points to be considered in placing axle light equipment on the car is a good suspension and the method in which the suspension is attached to the truck. On cars with steel trucks the suspension should be secured to the truck without any chance of vibration. A diagram of a substantial suspension brace is shown in Fig. 1. This should be bolted, or preferably riveted, to the side of the truck and can be secured to the suspension iron at its outer end on any of the standard equipments. These side braces may be  $\frac{3}{4}$  in. or  $\frac{7}{8}$  in. thick and will be found stronger than the suspension iron proper.

It is advisable, where possible, that large axle and dynamo pulleys be used. This will increase the life of the belt. A statement of belt mileage made on different classes of cars using the highest grade of 5-in. 4-ply rubber belt with 11-in. dynamo pulleys and 21-in. axle pulleys, is given as follows:

	Jan.	Feb.	March.	April.	May.	June.
Cars .....	117	118	121	117	109	117
Belts .....	48	26	34	19	28	19
Average mileage per belt .....	25,952	44,032	37,192	59,702	45,155	79,878

The reason for the low mileage in winter months is because of the ice and extremely cold weather.

From a report of the light failures, that is, those cars which arrived at a terminal with less than 25 volts, or 35 volts where tungsten lamps are used, it was shown that out of 120 cars, 14 failures were shown in January, or 88,900 miles per failure; six failures, or 199,000 miles per failure, in February; 13 failures, or 101,000 miles per failure, in March; 11 failures, or 107,000 miles per failure, in April; seven failures or 187,000 miles per failure, in May, and two failures, or 661,000 miles per failure, in June. It may be said of this also that the reduction in miles per failure in January, February and March was due to the cold weather. From the statistics of 58 different roads it was shown that 13,736 cars were lighted by electricity and 29,075 were lighted by other means, or about 32 per cent. are lighted by electricity. Of these 1,673 have straight storage; 481 are lighted with turbines; 2,073 have the head end system and 7,100 have the axle generating system.

A formula for the power required by engine lathes is as follows: Horse Power = feed in inches  $\times$  depth of cut in inches  $\times$  inches cut per minute  $\times$  number cutting tools  $\times$  constant for material.

The constants for the various metals are as follows:

Brass .....	0.1
Cast iron (soft) .....	0.3
Wrought iron and cast iron (hard) .....	0.35
Mild steel .....	0.4
Medium steel .....	0.5
Tire steel .....	0.6

#### TRAIN LIGHTING PRACTICE.

The report of the committee on train lighting practice, F. E. Hutchinson (C. R. I. & P.), chairman, included the various

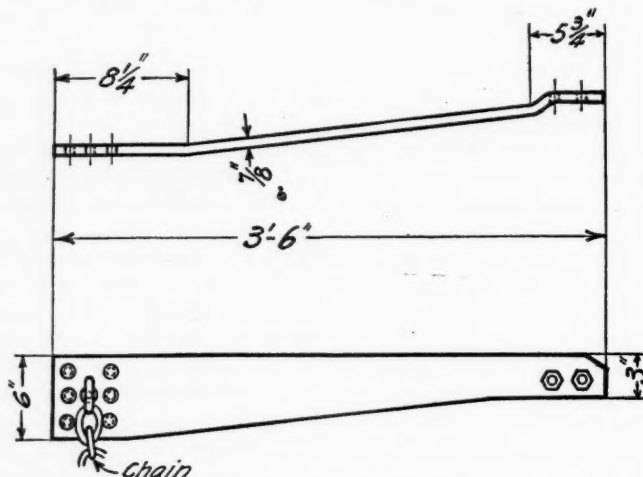


Fig. 1—Diagram of Suspension Brace.

methods of operating electric lighted cars, the cleaning of batteries, and reports on electric lighted cars. It was stated that the sediment removed from the batteries could be sold for \$40 per ton. The following was recommended for the form of inspector's report.

A book form with a carbon copy, original going to the chief electrician and carbon left in the car for the information of the inspector at the other end of the line. These originals can then be filed in date order in pigeon holes under car number and held for thirty days or longer and afford a ready reference without any copying being done. A card file can also be kept in connection with this book form on which the history of the car can be kept, such as the time car was delivered from the car builder, dates car goes in and out of shop, record of accidents to car, dates batteries were changed, dynamo removed for overhauling, equipment failed, etc. This can be kept in a separate card file or in the pigeon hole with the other reports for ready reference. This system has many advantages, as it keeps inspectors at the opposite ends of the line thoroughly familiar with what work



the inspector does at the other end of the run, and it is recommended for adoption.

## FORM OF INSPECTOR'S REPORT.

Car..... Train In..... Out.....  
 Place..... Date.....  
 Apparatus Working..... Lights Fail.....  
 Sp. Gr..... Height of Acid.....  
 Volts Battery..... Volts Lights.....  
 Battery Charged..... Hours..... Amps.....  
 Belts..... Train Conn..... Fans.....  
 Lamps Missing..... Burnt Out..... Applied.....  
 Oiled Generator..... Cond. Eg'pt on Departure.....  
 Cause of Failure and Material Used.....  
 .....  
 .....  
 Signed ..... Inspector.

## SHOP PRACTICE.

The committee on shop practice, C. J. Causland (Penn.), chairman, presented a report of what is considered good practice by shop engineers of the leading railways. In connection with this subject the paper on Electrical Equipment of Railway Shops, by G. W. Cravens, presented before the Western Railway Club and reported in the *Railway Age Gazette*, September 20, page 515, was mentioned. An abstract of the committee report follows:

**Power Plant.**—Steam turbines are being used to a very large extent in railway power plants, due to their smaller size and greater economy than reciprocating engines, but there is still much to be said in favor of the latter. They are favored by many engineers for driving direct current generators, with the turbine as the favorite for alternating current machines. One point which has always been mentioned in favor of the reciprocating engine is the use of its exhaust steam for heating the shops, but this applies only to non-condensing engines, usually. Recent developments in steam turbines have brought about a type designed especially with a view to using it in connection with steam heating systems. The large amount of glass used in railroad shops, with the consequent great radiation of heat, makes the heating problem an important one, but beyond the province of this report.

The switchboard should not merely contain panels enough for all of the generators and feeders, but each panel should have a complete equipment of meters, switches, etc., in order to allow of the fullest knowledge and control of conditions in each circuit.

If the power is to be transmitted over any very great distance, which seldom happens in railway shops, the voltage should be as high as possible for safety, in order to reduce the amount of copper required for the lines and to keep the terminal voltage up to as nearly normal as possible. Either a. c. or d. c. distribution can be made safely at 440 volts and this is high enough for any railway shop at present constructed, and if the power plant is properly located it will do for any plant that will probably ever be constructed.

The electric distribution system should be kept away from the heat of the steam pipes and the practice of putting the cables in ducts placed alongside a pipe tunnel, instead of having them in it, is better practice. This plan is followed in the Big Four shops at Beech Grove, Ind.

Where alternating current is used it is customary to locate transformers at the various distribution centers for stepping down the voltage to that required for the lights or motors. Usually these are located on poles outside the buildings, sometimes inside, but when the distribution system is underground the transformers must be inside the buildings or in manholes. At the Pullman shops manholes are placed at each of the principal distribution centers, outside the buildings, with the step down transformers therein for reducing the voltage from 2,300 volts to 110, 220 or 440 volts as required.

**Shop Equipment.**—Each shop presents conditions of its own.

One of the most important things is a good set of accurate records of time, operations, materials, machines, men and methods. Another is as to whether group drive or individual drive is going to be best for any one department or the entire shop.

There is practically no argument as to the use of anything but electric motors where they are at all applicable, and that means practically any place where power is used to produce motion. Among the benefits gained through their use are decreased transmission shaft losses, increased production through easy speed control, accurate knowledge of power required for any given purpose, ease of power control and distribution, flexibility of machine arrangement, reduced vibration of buildings and machines and the elimination of most belt troubles.

The present tendency in locomotive shop equipment is to increase the number of machine tools per pit. The average is between 6 and 8 per pit with many shops having from 5 to 6, but the tendency is towards from 8 to 10 per pit in several of the newer shops. There is no fixed rule, apparently, as to how many tools of each kind will be required per pit, but an average of a large number of shops shows the following proportions:

Turning tools .....	50 per cent.
Cutting tools .....	25 per cent.
Drilling tools .....	11 per cent.
Grinding tools .....	7 per cent.
Miscellaneous .....	7 per cent.

Nearly all wood-working machines in electrically operated shops are fitted with individual motors because of the comparatively large amount of power required. Induction motors with squirrel cage windings are used for this purpose on account of the freedom from sparking and the constant speeds.

The use of the automatic controlling devices is increasing. Suitable devices for both variable and constant speed motors are now available, most of them being arranged for push button control. The use of push buttons reduces the chances of injury to both workmen and tools, and makes it so easy to start and stop the machines that the men will stop them during idle periods instead of allowing them to run and waste power. The automatic starters also have certain protective features which are valuable, most of them opening the circuit on overload.

Another useful practice is being followed in regard to compressed air supply. This is the placing of small motor driven air compressors in all shops requiring air outside of regular working hours. In this way a small amount of compressed air may be provided without operating the large air compressors in the main power houses.

The use of electrically operated safety devices of a variety of kinds could be extended to good advantage, and a new system for this purpose will soon be placed on the market. This is designed to stop the machinery instantly in case of accident and may be operated from any part of the shop. Automatic fire alarm systems are also being neglected and the risk greatly increased as a result, with no good excuse. This is also worth consideration and improvement.

Other reports and papers were read which will be abstracted in the next issue of the *Railway Age Gazette*.

**PROPOSED RAILWAY CONSTRUCTION IN NEW SOUTH WALES.**—The public works committee of New South Wales has resolved that it is not expedient to build a line from Wyalong, in southern central New South Wales, northwest via Rankin's Springs to Hillston, about 80 miles, but recommends that consideration should be given to the construction of a line from Barmedman, about 10 miles south of Wyalong to Hillston. As a result of personal inspection of the country along the route proposed, the chief commissioner of railways is opposed to the construction of this line and recommends one from Hillston southeast to the railway system from Mirrool. As far as the country between Wyalong and Rankin's Springs is concerned the chief commissioner does not consider that the construction of a line is of immediate importance, and suggests for future consideration a connection between Barmedman and Rankin's Springs.

## UNION "SAFETY FIRST" RALLY AT KANSAS CITY.

Nine Thousand Railway Employees and Officers Attend Great Meeting to Promote the Reduction of Railway Accidents.

One of the most extraordinary meetings in the history of the railways of the United States was the Union "Safety First" Rally held in Convention Hall at Kansas City, Mo., on Saturday evening, October 19. As the name by which it was called implies, it was a union meeting, being participated in by officers and employees of all the fourteen roads entering Kansas City. As its name also implies it was called and held to promote knowledge, interest and enthusiasm regarding the "safety first" campaign to reduce railway accidents, which within two years has spread over railways throughout the United States. In point of attendance and of interest and enthusiasm displayed, the meeting was most successful, surpassing the expectations of the committee in charge of the arrangements. Approximately 9,000 persons were present. It had been planned to use only about one-half of the seating capacity of the hall, which has a capacity of 18,000 people, but before the meeting began it became evident that the attendance was to be so much larger than had been expected that it was necessary, in order to accommodate the overflow with a view of the platform and the screen on which the moving pictures were displayed, to remove the curtain which had been suspended to cut off about half of the hall.

The roads which participated in the meeting were the Atchison, Topeka & Santa Fe; Chicago, Rock Island & Pacific; Union Pacific; Missouri Pacific; Kansas City Southern; St. Louis & San Francisco; Chicago Great Western; Chicago, Burlington & Quincy; Chicago & Alton; Chicago, Milwaukee & St. Paul; Wabash, Missouri, Kansas & Texas; Kansas City Terminal, and St. Joseph & Grand Island. Special trains were run by the Santa Fe and Rock Island from Topeka and other points where a large number of men are employed, and nearly every train entering the city during the day brought scores of employees from other outlying railway centers.

The representatives of each road were grouped together with a large poster to designate them, and these delegations vied with each other in applauding references to their roads either in the speeches or in the moving pictures. The hall was attractively decorated with flags and safety emblems of the different roads, and on the platform back of the speakers were placed four large colored posters, each bearing the Santa Fe safety emblem, a trademark of the road with the motto "Get the safety habit," and one of the following epigrams: "Not how fast or how cheap but how safe"; "Santa Fe Safety First"; "Caution and common sense, in other words, the safety habit, is your best accident insurance." The banner annually awarded by the Chicago & North Western to the division making the best safety record for a year, was also placed on the platform.

Invitations had been sent to 460 executive, traffic and operating officers, and many of these were seated in the boxes. In the gallery were seated nearly 500 negro porters, waiters and other employees with members of their families. Music was furnished by the Santa Fe shop apprentice band from Topeka, which also led the Santa Fe delegation in a parade from the station to the hall.

The meeting was called to order by J. D. M. Hamilton, claim attorney of the Atchison, Topeka & Santa Fe, who spoke of the "safety first" movement as one of the greatest humanitarian movements ever inaugurated by the railroads or other industries of the United States. He introduced as chairman C. W. Kouns, general manager of the Atchison, Topeka & Santa Fe eastern lines, who read a large number of letters and telegrams from the presidents of the different roads commending the purpose of the meeting and expressing their regrets at not being able to be present. Mr. Kouns then made an opening statement as follows:

### CHAIRMAN KOUNS' REMARKS.

"Representing in our several capacities the great railroads of the southwest, we are here tonight in one of the most important movements ever inaugurated. We are going to confer together with a view of working out plans that will reduce the number of accidents resulting in injury or death. Already this movement is well under way. Upon several of the roads definite plans are being followed, and most gratifying results have been obtained. We wish to take advantage of the experience gained, and enlarge upon it. The need is great. Every day more than 25 human lives are being taken, and 480 are injured more or less seriously. Records compiled show us that above 70 per cent. of the accidents producing these serious results I have referred to are the result of carelessness upon the part of the killed or injured themselves, or of fellow workers. The next largest number are those who may be called "trespassers." We may start with this as a basis, and at present, devote our energies to the device and application of preventive measures.

The very large number of employees who are present with their families is the strongest evidence of the interest which this movement, and its purposes, have aroused. Your presence leads us to hope, with confidence, that it means the awakening of a spirit which will achieve the purpose so important to all of us here, and to humanity at large. We are fortunate indeed in being able to have with us a number of gentlemen experienced and prominent in this work who will, during the evening, talk to us about it."

### ROADS WANT ALL RULES OBEYED, SAYS W. T. TYLER.

W. T. Tyler, general manager of the St. Louis & San Francisco, then gave a talk on the general managers' views of the "safety first" movement. He said that the safety movement is one, at least, in which both labor and capital can meet on common ground and in which both must win if it is successful. From the standpoint of one who had gained his experience in the ranks, he doubted the view often expressed, that railroading now is not so difficult as in the old days. Considering the greater volume of traffic and the speed required, he was of the opinion that the railroad men's duties, difficulties and hardships today are at least equal to those of the past.

The managers have been frequently blamed for accidents on the ground that they require adherence to schedules regardless of conditions, and some officers, either by word or by inference, do lead men to believe their first duty is to make schedule time, but he wanted to say emphatically that such men do not voice the wishes either of the managers or the executive officers of the roads. He was authorized to say, and was able to say it of his own knowledge, that the executive officers of the railways do not expect men to hazard either their lives or limbs or the lives or limbs of passengers, or to hazard the company's property in order to avoid a delay or save time or expense. They expect the men to adopt the safe course, as the rules provide. They realize that the men have the nerve to do anything that is required of them but neither expect or desire men to take chances, and no man need fear that he is regarded as lacking in nerve when he adopts the safe course. It is only necessary to show his superiors that he moved as fast as he considered safe.

Mr. Tyler discussed the honor system of discipline as practiced in a number of schools and colleges, and expressed the opinion that in time the same plan might prove effective in railroading. He said there is no discipline so effective as that administered by one's fellow workers. The railways do not want the men to report each other, and the 'Frisco strongly discourages it, but he suggested that the men take up the ques-



tion of discipline themselves and relieve the officers. It is not necessary to discharge men, suspend them or to place marks against their records. The men can administer discipline themselves by making their disapproval of bad practices felt in a personal way. In the "safety first" movement the employees can do far more than the management, but they can depend on the continued co-operation of the officers always.

"LIQUOR AND RAILROADING DON'T MIX"—W. A. GARRETT.

W. A. Garrett, vice-president of the Chicago Great Western, addressed his remarks particularly to the large number of women present, and said that they can do more than anyone else to prevent the habit of carelessness in railroading, just as they have very largely killed the drink habit among railway men. The most hearty applause of the entire evening greeted his declaration that "liquor and railroading do not mix."

"You can't expect a man to use his gray matter," he said, "if it is clouded with liquor, nor can we expect the officers to handle the roads rightly under such circumstances. The rank and file are entitled to drink just as much, but not more than the officers." He also spoke briefly on the necessity for strict observance of rules, saying that the American Railway Association code of rules was believed to make impossible a head-on or rear-end collision. If the rules are found to be wrong they will be changed, but if they are right they must be observed implicitly.

R. C. RICHARDS ON THE "SAFETY FIRST" MOVEMENT.

R. C. Richards, general claim agent of the Chicago & North Western, gave the principal address of the evening, outlining the history of the "safety first" campaign on the Chicago & North Western and the organization of its safety committees in 1910, which has been followed by the organization of similar committees on 44 railways in the United States, having a mileage of 144,329 miles, as follows: Pennsylvania, Delaware, Lackawanna & Western, Elgin, Joliet & Eastern, Baltimore & Ohio, Baltimore & Ohio Southwestern, St. Louis & San Francisco, New York Central Lines, Illinois Central, Chicago, Burlington & Quincy, Chicago Great Western, Missouri, Kansas & Texas, Wheeling & Lake Erie, Union Pacific, Oregon Short Line, Oregon-Washington R. R. & Nav. Co., Southern Pacific, Southern Pacific of Mexico, Sonora Railway, Atchison, Topeka & Santa Fe, Denver and Rio Grande, Wabash, Cincinnati, Hamilton & Dayton, Chesapeake & Ohio, New York, Chicago & St. Louis, Chicago, Rock Island & Pacific, Jonesboro, Lake City & Eastern, Chicago & Eastern Illinois, Lehigh Valley, Canadian Pacific (lines east), Canadian Pacific (lines west), Chicago, Milwaukee & St. Paul, Fort Smith & Western, Norfolk Southern, Raleigh, Charlotte & Southern, Norfolk & Western, Mobile & Ohio, Southern, Chicago Junction, Bessemer & Lake Erie, Seaboard Air Line, Queen & Crescent, Chicago & North Western, Macon, Dublin & Savannah, Chicago, Indianapolis & Louisville.

Mr. Richards described various features of the safety work on his road and gave a large number of concrete examples of the principal causes of accidents to railroad employees. He emphasized throughout the fact that it is the little accidents that cause far more deaths and injuries than the big accidents, such as collisions and derailments, and that it takes less time to exercise the care necessary to avoid an accident than to make a report of it afterwards. He presented a table showing the results of the safety campaign on the North Western as indicated by the accident statistics for the 20 months ending August 31, 1912, as compared with the 20 months ending December 31, 1910, prior to the inauguration of the safety movement, as follows:

47 fewer employees killed, a decrease of.....	27.9
4,471 fewer employees injured, a decrease of.....	31.4
8 fewer passengers killed, a decrease of.....	36.3
217 fewer passengers injured, a decrease of.....	16.
97 fewer other persons killed, a decrease of.....	24.3
157 fewer other persons injured, a decrease of.....	15.4
TOTAL.	
152 fewer other persons killed, a decrease of.....	25.9
4,845 fewer other persons injured, a decrease of.....	29.1

An abstract of Mr. Richards' paper on this subject follows:

"We have learned from sad experience that we cannot make men careful by passing laws, for that has been tried and failed as we all know, as we have had employers' liability laws, workmen's compensation acts, laws limiting the hours of service, laws repealing the fellow-servant doctrine, and assumption of risk and safety appliance acts. Many or all of them have been enacted on the theory that if the employer were made to respond in damages it would make him more careful and prevent accidents, on the supposition that most accidents are caused by the carelessness of the employer in failing to furnish proper track equipment and tools, and overlooking entirely the human element, the most important thing not only in railroading but in all business. Regardless of all such laws, the deaths and injuries kept on, not only occurring but increasing until finally we got our eyes open to the fact that while such laws to a certain extent reduced the financial loss and suffering of our people and of their widows and orphans, they didn't do what it was supposed they might, that is—prevent accidents happening, and so it was decided by ourselves, who were the sufferers, that something else must be done to prevent the awful waste of human lives and stop the making of cripples, and widows and orphans.

RAILROAD FATALITIES BUT SMALL PART OF INDUSTRIAL ACCIDENTS.

"How badly some such action is needed is shown by the September, 1908, bulletin issued by the Commissioner of Labor of the United States, which on page 458 shows 35,000 workmen killed in industrial accidents each year, or one every 15 minutes of every day in the year, and the injuries of 2,000,000 every year, or one every 16 seconds of every minute and hour and day in the year, and, contrary to the general understanding, only one-tenth of the deaths and one-sixteenth of the injuries were railroad men, the other nine-tenths and fifteen-sixteenths being workmen employed in the other industries of the country, but because the railroads were the only ones who reported their accidents to one central authority where they could be tabulated and published, they were the only employers of labor who have been generally criticized because so many of their workmen were killed and injured.

"When we commence to exercise the same care in the selection of new men and in educating them as to their duties that we do in the selection and care of new machinery, cars and engines—and somehow it has always seemed to me that men were the important element on a railroad, or in any business, not the machine—we will have safer and more regular operation and fewer accidents.

SYSTEM OF HIRING MEN DEFECTIVE.

"I believe that our system of hiring men is obsolete, and we ought to have a much better one. We have been devoting all this time to getting fine engines and tracks, better cars, better apparatus and better safety things, but very little time or attention has been paid to getting safety men, and if we had devoted as much time and thought to getting safety men as we have to getting safety things, and educated the men after we got them, as they are now doing on the Union and Southern Pacific and some other roads, our accident record would be different. And we ought to have instructors of rules and regulations the same as we have an instructor of air brakes.

"When we separate today and go back to our homes, let us do so with renewed enthusiasm, faith and hope in the safety movement, with new courage and strong conviction to do what we each of us can to prevent accidents occurring and with the determination that we will each week do something to prevent an accident occurring, so that next year the Interstate Commerce Commission will report only half as many deaths and injuries to railroad men as it did last year, and that each week we will get one convert to the safety movement, just as we would do if we were running for some office—get at least one vote a week—always remembering that there is no more honorable position on a railroad today than that of membership on

a safety committee, and from those committees the future operating officers of the railroads will largely come.

#### MOVING PICTURES SHOW RIGHT AND WRONG METHODS.

L. F. Shedd, general safety supervisor of the Chicago, Rock Island & Pacific, gave a brief talk in introducing a series of moving pictures which he had had especially posed on "The Right and Wrong Way to Do Train and Shop Work." These pictures illustrated the various methods commonly employed by railroad men which cause many accidents, such as stepping on the foot-board of switch engine pilots in motion, using the foot to line up drawbars or couplers, hanging from side ladders in such a way as to cause danger of being struck by switch-stands, trucks on station platforms or gates of stock chutes, failure to place a blue flag in front of a string of cars during a brief inspection, crossing tracks in front of moving engines, etc.

C. W. Egan, general claim agent of the Baltimore & Ohio, also presented a moving picture drama, entitled "A Workman's Lesson," in which a love story is used to make more effective the lesson of the advantage of using safeguards for shop tools. The picture illustrated the experience of a young foreigner who was induced to take off the safeguard from the machine tool on which he was working by the prejudice of an old man in the shop who was also the father of the girl to whom the young

#### MOTOR CAR SERVICE ON THE PITTSBURGH & LAKE ERIE.

The Pittsburgh & Lake Erie is about to establish a motor car service between McKeesport, Pa., and Beaver Falls. At present it is necessary for those wishing to travel between these two points to transfer at the terminal station at Pittsburgh. McKeesport is about 15 miles south of Pittsburgh, and Beaver Falls is 29 miles north of it. A continuous suburban service between these two points is especially desirable, because of the establishment of the Jones & Laughlin works at Aliquippa, as there is a considerable interchange of employees between the old mill at Thirty-fourth street, which is south of Pittsburgh and the new plant at Aliquippa, which is between 10 and 11 miles north of it. It is expected, if the experiment works out satisfactorily, to establish an hourly service between the above mentioned points. There will probably be very little revenue from this service, but the annoying delays incidental to transferring the traffic at Pittsburgh will be avoided, and the motor car service will undoubtedly be much cheaper than if a steam locomotive and coaches were used with full crew.

To take care of this service a gas-electric car has been ordered from the General Electric Company, Schenectady, N. Y.,



Gas-Electric Motor Car to Be Used with a Trailer on the Pittsburgh & Lake Erie.

man was engaged and who had induced many other employees to disregard the safety devices on account of his prejudice to new-fangled methods. The young man had his arm cut off, and after that both he and the old man were "safety first" advocates.

The programme as arranged provided for a series of three to five-minute talks from representative employees from various branches of the service of the lines entering Kansas City on the subject of "Prevention of Personal Injury Casualties by the Individual Efforts of Employees in Co-operation with the Company." On account of the late hour of starting the meeting, however, and the lack of foresight in not limiting the speeches of the railway officials, it was found necessary to stop the meeting after the pictures had been presented, as it was then 11 o'clock, and large numbers of those in attendance were obliged to leave in order to catch their trains.

**NEW RAILWAY MILEAGE IN ARGENTINA.**—During 1911 254 miles of new line were opened on the Buenos Aires Great Southern Railway. In the same year 313 miles of new line were opened on the Central Argentine Railway, and 221 miles on the Buenos Aires Western Railway.

and a trailer from the Wason Manufacturing Company, Springfield, Mass. This application of a gas-electric car is rather unique, because it is the first instance, so far as we know, of a self-propelled car of this type being employed in this country on a main line, heavy four track road for local runs and interpolated between the schedules of limited trains, and the result will be watched with much interest. The tentative schedule, covering the distance of 49 miles, calls for 45 stops, the distance to be covered in 2 hours and 30 minutes.

The gas-electric car is smaller than the standard sizes which have been built by the General Electric Company, but including the trailer the seating capacity of the combination is much greater than that of previous motor cars which have been built by that company. The car body of the motor car is of all-steel construction, except for the interior finish, and was built by the J. G. Brill Company, Philadelphia. The design is similar to that of the 70-ft. cars which have been built by the General Electric Company heretofore. The car is 42 ft. 6 in. long; 10 ft. 5 in. wide; weighs 36 tons, and has a seating capacity for 42 people. It is divided into three compartments; one 20 ft. 5 in. long for the passengers in which the seats are finished in genuine Spanish leather. This will be the smoking compartment. Another section 6 ft. long will be used for baggage; it is not



expected that any bulky express will have to be handled in this service. The third compartment is 12 ft. long and contains the power apparatus. The entrance is at the rear platform.

The trailer car measures 38 ft. 6 in. long inside and 44 ft. 10 in. over the buffers. It is 10 ft. wide over the side sills and is designed to seat 74 people on the basis of three passengers per seat for all except the four corner seats, which are designed for two passengers per seat. The cross seats are 47½ in. long and

33 in. solid rolled steel wheels. As may be seen from the illustrations, the trailer car has both front and rear platform entrances.

The motor car is equipped with two GE-205, 600 volt motors of 100 h. p. each; they are of the commutating pole type and are also governed by shunt field control. This auxiliary method of control assures greatly increased operating efficiency through uniform saving of power, economy effected by decrease in the weight of the equipment and an available increase in the service capacity. Two extra points are provided on the controller for final speed acceleration in parallel, whereby the motor fields are shunted and weakened. The resulting higher armature speeds permit the use of smaller pinions, and full utilization of the power input is secured throughout the entire speed range, from start to full speed.

### A FOREIGN VIEW OF AMERICAN RAILWAYS.\*

By C. COLSON,

Member of the Council of State of France.

The scope of railway operation in the United States is perhaps the grandest and most fruitful that the history of industrial development discloses. The area of the Union (not including Alaska and the colonies) comprises 3,616,484 sq. miles, approaching that of Europe, which is about 3,754,282 sq. miles; but the population did not exceed 92 millions in 1910, as compared with 453 millions in Europe, and it amounted 35 years ago to but half of the present figure. Yet the network of railways amounted at the end of 1910 to about 241,800 miles, while over the whole of Europe there were only about 217,000 miles.

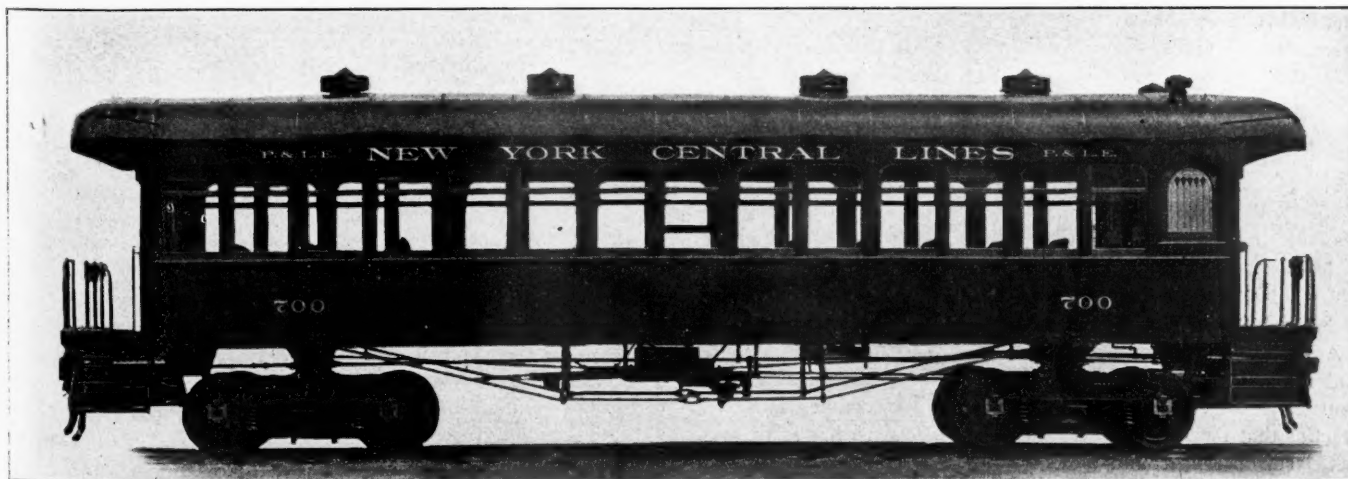
It can be said that colonization has followed the railways, has penetrated with it into an immense continent where no other way of communication before existed, outside of a few large rivers. Interior navigation, the field for which it was sought to extend by the construction of numerous canals with the scope of railways, has been almost completely abandoned, since a more improved method of transportation has been known, except upon the Great Lakes, where it is of an almost maritime nature, and upon exceptionally situated waterways. It is the railway that has permitted this immense continent to acquire value with unexampled rapidity; to develop the production of goods which, exported to the old world, tremendously depressed prices, and thirty years ago brought on an agricultural crisis due to those low prices; and to distribute a population which soon will itself consume all the products of the country, a fact so important that it is an essential element in the general rise of prices which today is provoking in France the inverse crisis of the preceding one, a crisis of dearth of goods. Finally, the railways, carrying

\* Excerpts from a Review of Transportation Questions, by C. Colson in *Revue politique et parlementaire*, August 10, 1912.



Interior of Trailer Car for Use in Motor Car Service on the Pittsburgh & Lake Erie.

will be slightly crowded for the accommodation of three large persons. The outside sheathing is of 9/64 in. gage patent levelled planished sheet steel and the inside of the car is finished with selected mahogany, except for the ceilings which are of 3-ply ¾ in. whitewood veneer. The seats, of the Hale & Kilburn type, are without aisle ends and are finished in green plush. The car is fitted with a Peter Smith hot water heater. Ventilation is obtained from four 12 in. Burt ventilators. The trucks are of a special type corresponding to those used under the motor car, and have a 6 ft. wheel base, 4¼ in. x 8 in. journals and



Trailer Car for Use in Motor Car Service on the Pittsburgh & Lake Erie.

coal and minerals at rates even lower than those on grains, are assisting the American Union to an industrial expansion as astonishing for its rapidity and scope as was its agricultural expansion of old. . . .

While in Europe civilization has preceded easy modes of transportation, forcing the organization of production in the manner which so far as possible suffices in each region, in America agriculture and industry sprang up at almost exactly the same time as the railway. Each region has been able to devote itself solely to the products for which its soil, subsoil and climate are best adapted, the ease of exchange over great distances thus allowing a division of labor between the different parts of the country. As a result, long-distance train-load shipments constitute a much more important part of the total traffic than in our old country. . . . In Europe cars of 10 tons are still the rule, those of 20 tons the exception, and those of 40 tons relatively rare. In the United States only 12,000 out of 2,400,000 cars carry less than 18 tons; the greater part carry 18 to 33 tons; 634,000 can carry 33 tons; and 390,000 have a capacity from 42 to 54 tons. These are the operating conditions, growing out of the historical development of American agriculture and industry, which make very low rates compatible with profitable operation. But it is the initiative of American companies, and their liberty of action which they have for a long time enjoyed, which has given that development its prodigious rapidity and its marvelous adaptation to modern needs. . . .

The action of federal power tends especially to wipe out special treatment, arbitrary inequalities, and discriminations not due to differences in conditions of transportation or in geographical situation. But, by a peculiar survival of ancient ideas, the legislator, at the same time that he follows up the destruction of inequalities, endeavors to retain the cause of inequalities by hindering the companies from suppressing competition by agreements. The anti-trust campaign carried on by President Roosevelt, combining just criticisms with a violent appeal to demagogic passions, has resulted in the application to railways of legislation which the nature of things renders inapplicable to them. In vain the Interstate Commerce Commission, which one would not suspect of having sympathy with the railways, has declared that competition was the source of all the inequalities of treatment and that efficient control was the only serious remedy for the abuses of a long inevitable monopoly. In vain President Taft, who is pursuing the trusts with such vigor, proposed to insert in the latest railway law a clause authorizing the companies to establish properly regulated agreements. Congress has not ventured to vote an arrangement for which all competent men, whether friends or enemies of the railways, recognize the necessity.

The cost of construction has certainly been very much reduced by the fact that, although in Europe (especially England) land had already become very costly when the lines were built, in the United States not only did it cost nothing at all in many cases, but the receipts from the sale of lands received as grants from the government have covered part of the expenses of certain lines. The proportion of track in flat country and easily built is no greater in the United States than in Germany. It is true that many of the lines were originally established under very inexpensive conditions, occupying or running along public roads, without fences and with very crude stations and signal systems. But little by little, while the traffic has been developing, it has been necessary to transform most of the lines serving densely populated regions, much of which has been done at an expense comparably great with that of our lines.

A large part of the betterments, however, have been included under annual operating expenses, covered by the operating revenues, instead of being added to the capital account. This is a practice that the Interstate Commerce Commission has sometimes criticized, on the ground that it tends to justify the unduly high rates by increasing operating expenses, adding to them expenses of an entirely different nature. In reality, the improvement of

road and equipment by means of deductions from revenues is a practice constantly followed in all well-managed agricultural or industrial enterprises, and if it is a good thing to distinguish the different kinds of expenses for the sake of clearness in accounting, one can only adopt the method of immediately amortizing a part of the increases in equipment by charging it to improvements. It is, indeed, an absolutely indispensable practice when the companies have, as in America, perpetual concessions, the title to which is not gradually wiped out by amortization over a determined period. If it were done otherwise, the railways would keep indefinitely enlarging the loans made for the purpose of building up an equipment which the progress of industrial art and the displacement of the channels of traffic render, in one respect or another, useless. It is applied prudence not to increase capital too greatly for the completion of the complementary works that have improved the excellent financial situation of the American railways, as well as of the German railways, while the contrary practice, not being compensated as in France by an amortization of securities, has considerably prejudiced the future prospects of English railway companies.

We are convinced that on the whole the amount of American railway securities in the hands of the public is notably less than the actual cost of the lines, and less by an even greater amount than the cost of constructing them would be today. But whether one relates the net revenue to one or the other of these amounts, it is hard to conceive what light the exact determination of the amounts, if they were ascertainable, would cast on the current discussions regarding the justifiability either of lowering, or maintaining, or of increasing rates. The idea that the reasonable rate on each railway is that which furnishes its invested capital with a return corresponding to the average rate of return upon other equally secure investments is an absurd one, for the direct consequence of it is that an enterprise ill-conceived and poorly conducted can legitimately make its patrons pay rates that would be unreasonable on a system well laid out and well operated. This idea, it is true, is one very easily accepted by the public mind and by legislatures. Every demand for help or protection made by a tottering enterprise finds favor in public opinion, which on the other hand always considers excessive the dividends of a business that is splendidly managed like our railway companies, or the dividends of an ore company whose capital is infinitely small because in place of issuing securities to cover all its construction expenses it has for many years devoted to that purpose first the whole and then a considerable part of the profits which the stockholders had been able to apportion.

**PROPOSED RAILWAYS FOR BULGARIA.**—The minister of railways of Bulgaria is negotiating for the construction of lines from Radomir, about 18 miles south of Sofia, in the southeastern portion of Bulgaria, southwest to Dubnitsa, about 25 miles; and from Silistria, on the Danube in northeastern Bulgaria, southwest to Eski Djuma, about 75 miles.

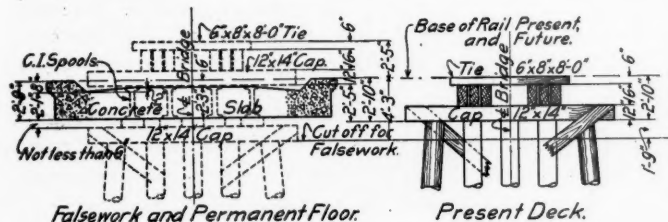
**ORE TRANSPORTATION BY CABLE.**—One of the largest iron ore producers of England, the Orconera Iron Ore Company, has had a double cable line five miles long built from its ore pits at Carmen, in Spain, to a great mashery near the coast, some 800 ft. lower down, capable of carrying more than 2,500 tons hourly. It is claimed to have the greatest capacity of any cable line in the world. The mashery at Povenia is considerably higher than the middle of the route; and the mashed ore is sent back some 2½ miles and switched to a branch cable more than a mile long, over which the cars are moved to a station of a railway belonging to the ore company and discharged into cars which are hauled to the port of Bilbao. The two cable lines are entirely distinct, and in case of temporary disability of one, the other will be working. Grades up to 41 deg. are overcome with safety. Loaders and unloaders and the modern appliances for handling ore with the minimum of labor are provided. The cable railway was built by the German firm of Adolf Bleichert & Co.



## REINFORCED CONCRETE SLAB BRIDGE.

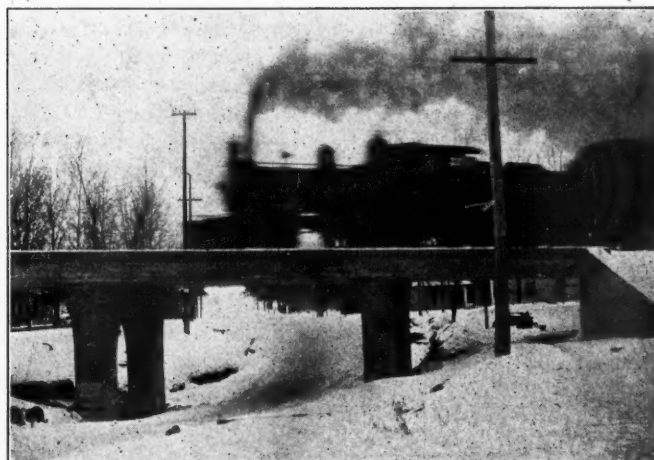
The Minneapolis, St. Paul & Sault Ste. Marie has adopted concrete slab bridges, reinforced by the "mushroom" system, for a number of highway crossing locations. This system of reinforcement, patented by C. A. P. Turner, consulting engineer, Minneapolis, has been in use for sometime in building construction, but has not been widely adopted for railway bridge construction. Two bridges built in the town of Amherst, Wis., are typical of these structures. The details of the Lincoln street bridge are shown in the accompanying illustration.

The street is crossed on a skew of 47 deg. and 40 min., the abutments and piers being parallel at an angle with the center line of the street. The piers consist of two reinforced concrete



### Old Pile Trestle and Method of Replacing with Concrete Slab Bridge.

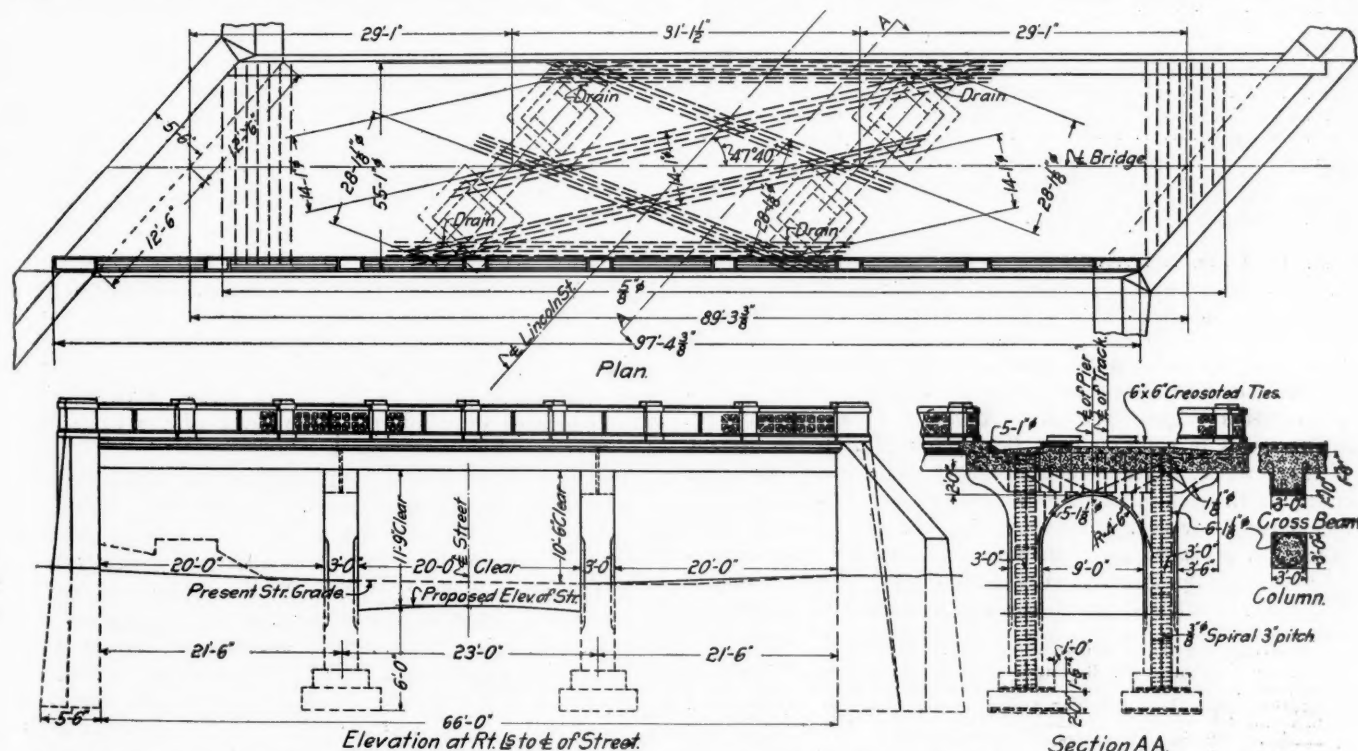
columns 3 ft. square spaced 12 ft. center to center, connected at the top by a concrete beam. The footings are spread to 7 ft. square and are reinforced in four directions, as shown in the drawing. The columns are reinforced by six  $1\frac{1}{8}$ -in. round rods set vertically and banded spirally by  $\frac{3}{8}$ -in. round rods on 3-in. pitch. The columns are 14 ft. 3 in. high from top of footings to bottom of slab, and the corners are chamfered to a depth of 3 in. The transverse beams, which have a minimum depth of 2 ft. below the slab, are arched between columns and are carried out beyond the columns on the curved lines shown in the accompanying cross section. The beams are reinforced in the upper plane by five 1-in. round rods, and in the lower plane by eight  $1\frac{1}{8}$ -in. round rods bent up for shear reinforcement, and five  $1\frac{1}{8}$ -in. rods bent down for surface reinforcement over the arch. In



**Mushroom System Reinforced Concrete Slab Subway on Minneapolis, St. Paul & Sault Ste. Marie.**

in. round rods for the shorter lengths and 1-in. rods spaced 6 in. center to center for the longer lengths. The central span is 31 ft. 1½ in., and the two sidewalk spans are 29 ft. 1 in. Drainage is carried in troughs built in the upper surface of the slab on either side of the ties to outlets over each pier. The clearance over the street level is 11 ft. 9 in., and between railings 16 ft.

A similar bridge over Wilson street was built first. In this case turnouts were installed and a temporary pile trestle was driven alongside the old structure, over which trains were operated during the construction of the new bridge. In building



Plan and Elevation of Subway Built at Amherst, Wis., for Minneapolis, St. Paul & Sault Ste. Marie, Showing Column and Slab Reinforcement.

the Lincoln street bridge, however, traffic was maintained over the structure during the reconstruction work. To accomplish this, the jack stringers, guard rails and long ties were removed and the deck of the original pile bridge was jacked up about 2½ ft., run-offs being provided at both ends by cinder fills. The track was blocked up in this position on cast iron spools as shown in the accompanying sketch. These spools were 2 ft. 3 in. long and 10 in. in maximum diameter, placed so as to not interfere seriously with the slab reinforcement. They were concreted into the floor slab and allowed to remain in the position shown. The forms for the concrete slabs were built on the old trestle, effecting a saving in the cost of false work. This hump in the track made it necessary to operate carefully over the bridge during construction, but traffic was never interrupted.

These bridges were built under the direction of Thomas Greene, chief engineer, and C. N. Kolk, principal assistant engineer.

### TRAIN ACCIDENTS IN SEPTEMBER.<sup>1</sup>

Following is a list of the most notable train accidents that occurred on railways of the United States in the month of September, 1912:

#### Collisions.

Date.	Road.	Place.	Kind of Accident.	Kind of Train.	Kil'd.	Inj'd.
6.	Balt. & O.	Cincinnati.	xc.	P. & F.	2	7
7.	Rutland	Bennington.	bc.	P. & F.	3	12
8.	Trinity & B. V.	Hillsboro.	bc.	P. & F.	0	16
8.	Penn.	Harrisburg.	xc.	P. & F.	1	0
10.	Penn.	Latrobe.	rc.	P. & F.	2	6
11.	West'n Md.	Shaw.	bc.	F. & F.	1	18
15.	N. Y. C.	E. Rochester.	rc.	F. & F.	3	5
20.	Louisv. & N.	Kiserton.	xc.	P. & F.	0	24
†22.	Pitts., S. & Nor.	Nile, N. Y.	bc.	P. & F.	3	32
26.	Kan. City So.	Kansas City.	bc.	P. & F.	2	3

#### Deraillments.

Date.	Road.	Place.	Cause of Derailm't.	Kind of Train.	Kil'd.	Inj'd.
1.	Wab., Pitts. T.	Rockdale.	washout.	F.	2	0
†1.	Chicago & N. W.	Lyndhurst.	washout.	P.	6	24
†2.	Mo. & No. Ark.	Shirley.	d. track.	P.	1	8
2.	C., St. P., M. & O.	Camp Douglas.	flood.	P.	3	29
5.	Southern	Holton, Ga.	unx.	P.	1	6
8.	Balt. & Ohio	Colfax, W. Va.	derail.	F.	1	1
8.	N. Y. C.	Fort Plain.	d. truck.	F.	2	0
10.	N. Y., Chi. & St. L.	Erie.	unx.	P.	0	35
12.	New York Central	Morton, N. Y.	ms.	P.	1	16
21.	Texas & Pac.	Hawkins.	unx.	P.	0	40
†25.	Southern	Plainville, Ga.	unx.	P.	3	23

#### Other Accidents.

Date.	Road.	Place.	Cause of Accident.	Kind of Train.	Kil'd.	Inj'd.
29.	Great Nor.	Helena.	{ Fall of rock in tunnel. }	F.	1	3

The trains in collision at Cincinnati, Ohio, on the 6th were eastbound passenger No. 20 and a yard engine. The passenger train was just entering the yard. Two trespassers on the passenger train were killed and seven other persons were injured. The collision was due to failure to protect the yard engine.

The trains in collision near Bennington, Vt., on the evening of the 7th were a northbound passenger and a southbound milk train. Both engines and several cars of both trains, including one passenger coach, were wrecked. The engineman and the fireman of the passenger train were killed and the other engineman was fatally injured. Ten passengers and two trainmen were injured. The collision was due to neglect of the men in

charge of the passenger train who forgot, overlooked or ignored the schedule of the milk train.

The train wrecked at Hillsboro, Tex., on the night of the 8th was northbound passenger No. 8. Entering the station at moderate speed, it ran over a misplaced switch and into the head of a work train standing on the sidetrack. Both the passenger and the work train engines were oil burners and the oil in the tenders took fire; and the combustible parts of the engines and the front end of the mail car were destroyed by fire. Sixteen passengers were injured, none seriously.

The train which was wrecked at Harrisburg, Pa., about 1:15 a. m. on the 8th was a westbound express, carrying no passengers. It approached the station at very high speed, in disregard of all signals, and the signalman, seeing that the runner was not in control of his engine, turned the train to a side track, where it collided with some empty passenger cars. The engine was completely turned around and overturned, and the engineman, Wilbert Stone, was fatally injured. The reports say that before his death he said that he must have fallen asleep. It is said also that the fireman had had to awaken the engineman near Lancaster, 36 miles east of Harrisburg. Stone is reported as having been a man of quiet, steady habits. He had made his regular run on this train on the 6th, sleeping in the bunk room at Harrisburg from 2 a. m. to 10 a. m. He was in bed during the middle of the day on the 6th, as well as all of that night, and until nearly noon of the 7th. He was at home the afternoon of the 7th, going on duty about 9 o'clock that evening, when, apparently, he was in good physical condition.

The trains in collision near Latrobe, Pa., on the 10th were the second section of westbound passenger No. 21 and a freight engine. One engineman and one trainman were killed and two firemen and four passengers injured. The cause of the collision was a failure of block working. Immediately preceding the passenger train was a freight train, which was drawn by one engine and assisted by a pusher engine at the rear. The pusher engine was cut off to take coal, after which it followed the freight train very slowly on account of foggy weather, but did not overtake it. When the freight train stopped west of the block signal station just west of Latrobe, one of the brakemen, seeing that the pusher engine was not with the train, displayed markers on the rear end of the caboose, thus indicating that the train was complete. When the signalman in the tower saw the markers, he reported the block clear, and the passenger train was admitted under a clear signal. It overtook and ran into the pusher engine about one mile east of Latrobe.

The trains in collision near Shaw, W. Va., on the 11th, were a westbound work train and an eastbound freight. A foreman was killed and 3 trainmen and 15 laborers on the work train were injured; one of them fatally. The cause of the collision was the failure of an operator to deliver an order to the work train.

The wreck at East Rochester, N. Y., on the morning of the 15th, was due to a freight train running into the rear of a preceding freight in a dense fog. The wreck fouled adjacent main tracks and a third freight train ran into it. One fireman and two trespassers, riding on one of the trains, were killed, and five employees were injured. The cause of the collision was excessive speed under a caution signal.

The train which was wrecked at Kiserton, Ky., on the 20th, was southbound passenger No. 37. It ran over a misplaced switch and into the head of a work train. Twenty passengers, three trainmen, and one express messenger were slightly injured.

The trains in collision at Nile, N. Y., on the evening of the 22nd, were a southbound passenger, running at full speed, and a northbound freight train. Both engines and two cars were wrecked. Two passengers were killed and twenty-seven passengers and six employees were injured, the engineman fatally. The cause of the collision was the failure of the passenger train to wait at Friendship, in accordance with a despatcher's order.

The train derailed near Lyndhurst, Wis., on the 1st, was

<sup>1</sup> Abbreviations and marks used in Accident List:  
rc, Rear collision—bc, Butting collision—xc, Other collisions—b, Broken—d, Defective—unf, Unforeseen obstruction—unx, Unexplained—derail, Open derailing switch—ms, Misplaced switch—acc, obst., Accidental obstruction—malice, Malicious obstruction of track, etc.—boiler, Explosion of locomotive on road—fire, Cars burned while running—P, or Pass., Passenger train—F, or Ft., Freight train (including empty engines, work trains, etc.)—Asterisk, Wreck wholly or partly destroyed by fire—Dagger, One or more passengers killed.



southbound passenger No. 112. The roadbed had been weakened by a washout due to a cloudburst, and the engine and first four cars were ditched, all of these being overturned except the fourth car, which was a day coach. One passenger and five trainmen were killed and 24 passengers were injured.

The train derailed near Shirley, Ark., on the night of the 2nd, was eastbound passenger No. 1, running at about 30 miles an hour. One passenger was killed and seven passengers and one employee were injured. The derailment was due to distortion of track by solar heat.

The train derailed near Camp Douglas, Wis., at 5:30 a. m. on the 2nd, was southbound passenger No. 10, and the cause was the weakening of a bridge by a flood due to a cloudburst. The whole train dropped into Lemonweir creek. The engineer, fireman and one trespasser were killed, and 26 passengers and three trainmen were injured. A section crew had passed over the bridge about 30 minutes before, and an express train had passed over the structure less than 20 minutes prior to the accident, and there was no indication at that time of anything out of the ordinary.

The train derailed at Holton, Ga., on the Southern Railway on September 5 was eastbound passenger No. 6. The engine was overturned and the engineer was killed. The fireman and four other trainmen and one passenger were injured, the fireman fatally.

The train derailed at Colfax, W. Va., on the morning of the 8th, was a westbound extra train, made up of empty passenger cars. Running about six miles an hour, it ran off a derailing switch at the west end of a westbound passing siding, and the engine turned over. The engineer was killed and the fireman seriously injured. It is said that the fireman had properly called the signal and that the engineer had properly responded.

The train derailed at Fort Plain, N. Y., on the 8th, was an eastbound fast freight, and 19 cars were wrecked. Two trespassers riding on the train were killed. The derailment was due to the breaking of a truck of one of the cars.

The train derailed near Erie, Pa., on the afternoon of the 10th was eastbound passenger No. 6. The first vehicle to leave the track was the tender, and five of the cars were ditched. Two employees and 33 passengers were injured. An officer of the road writes that the derailment was due to some cause not determined.

The train derailed at Morton, N. Y., on the 12th, was westbound passenger No. 6. The locomotive and 3 cars were overturned. Two freight cars on a sidetrack were also damaged. The fireman was killed and 15 passengers and one trainman were injured. The derailment was due to a misplaced facing point switch, a brakeman on a preceding freight having left it in the wrong position.

The train derailed near Hawkins, Tex., on the morning of the 21st, was westbound passenger No. 3. The engine, tender and four cars were ditched. Thirty-one passengers and nine trainmen were injured. The derailment was due to some cause not determined.

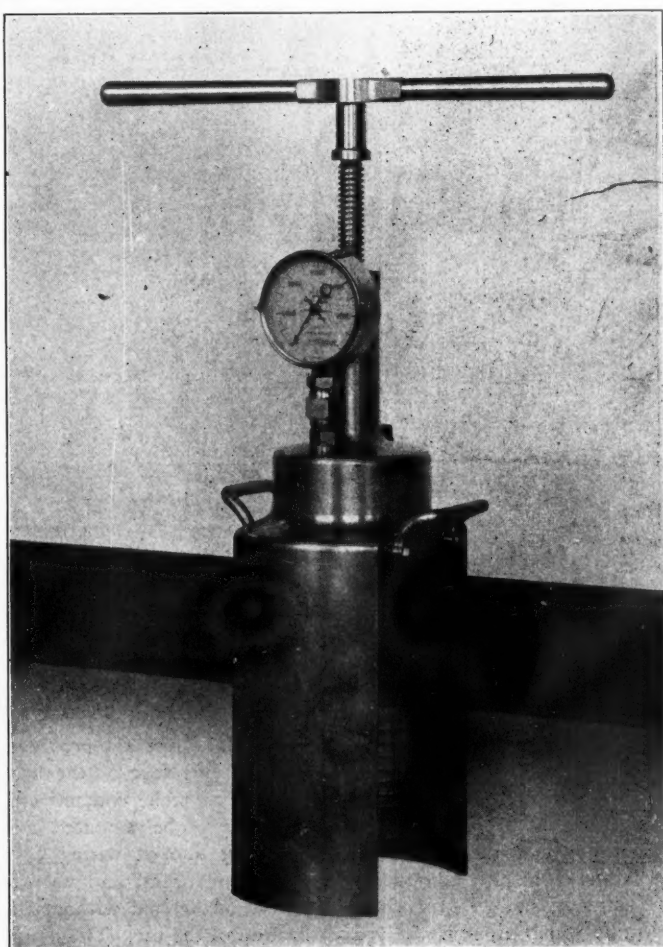
The train derailed near Plainville, Ga., on the evening of September 25 was southbound express, passenger No. 14. Three passengers were killed and 22 passengers and one employee were injured. An investigating board reported that the cause of the derailment could not be determined.

The train which was wrecked near Helena, Mont., on the 29th, was a northbound work train, and the cause was the caving in of a tunnel. A large rock fell on the caboose of the train and one laborer was killed and three were injured. Contractors had been at work relining the tunnel.

**Electric Cars.** The only fatal accident to electric cars which we find reported as occurring in the United States in the month of September, was a derailment near Dover Bay, Ohio, on the 8th. A two-car limited train ran into a five-ton automobile truck on a crossing, and the leading car was overturned and wrecked. Thirty-five passengers were injured, two of them fatally.

## TESTING HARDNESS OF RAILS BY BALL PRESSURES.

The process of testing the hardness of metals by ball pressures has been used only in a very limited way, because a convenient apparatus for conducting such tests was not available. Such an apparatus is now being manufactured, however, by the Dubel-Werke, Limited, Berlin, Charlottenburg, and is being very generally used for testing rails and tires by European railways. The theory of the test made by this instrument is that the hardness of metal is indicated by the ratio which the superficies of a cavity made by pressing a ball into the surface of the metal bears to the pressure applied. The superficies of the cavity is calculated from the depth, or, to be more accurate, the diameter of the cavity. The device which is shown in the accompanying photograph can be slipped over the rail to be tested so that the steel ball, which is about  $\frac{3}{4}$  in. in diameter, is held in a piston



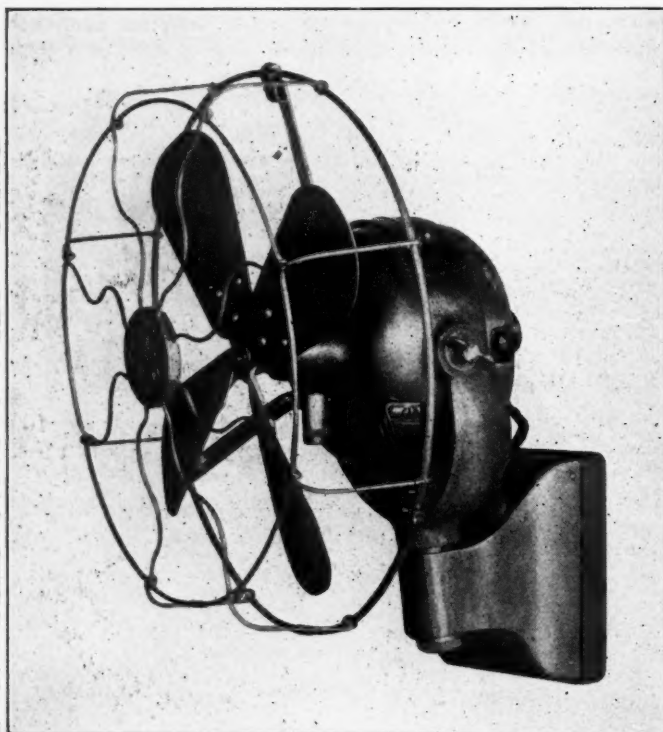
Apparatus for Testing Hardness of Rails.

resting on the head of the rail. The piston is set in motion by hydraulic transmission when the spindle shown at the top of the apparatus is turned. A detachable nut in the lower part of the apparatus allows an adjustment to be made to the height of the rail without changing the pressure. When pressure is applied it gradually forces the ball into the surface of the rail. The pressure is read from a manometer. The apparatus is designed to resist a maximum pressure of about 132,000 lbs., and weighs about 250 lbs., including the filling and key.

**NEW LINE FOR CHILE.**—A bid has been accepted by the Chilean government for the construction of the Linares to Calbuco Railway. The construction will cost 667,610 pesos paper, and 61,000 pesos gold.

## BRACKET FAN FOR PASSENGER CARS.

A new bracket fan with a number of improvements in design, and furnished by the General Electric Company, Schenectady, N. Y., has been used on some of the Illinois Central parlor cars. The unique feature is a detachable base plate, which allows the fan to be removed from the car interior at the approach of the winter season without taking out any screws or marring the car finish. The plate remains permanently attached to the car partition, and when the fan is taken down a neat cover, in harmony with the interior finish of the car, fits over it. Both the fan motor base and cover are readily mounted on base plates, when permanently installed on the car interior, without the use of tools of any description. These fixtures are attached by hook-



Bracket Fan Used in Illinois Central Parlor Car.

ing the pins, with which the motor base and cover are provided, over the large screws on the base plate. The face of the base plate is provided with spring contacts, which make contact with plates on the motor base, so that fans may be mounted and taken down without making or disturbing line or wiring connections. The fan is arranged for both horizontal and vertical adjustment, and will remain in any position desired without the shifting which often results from vibration of the car. The motor is totally enclosed and dust proof. Standard fans are provided with single voltage, constant speed motors; but motors would for combination 30 and 60 double voltage operation may be furnished if desired.

**FEDERATED MALAY STATES RAILWAYS.**—At the end of 1911 the total mileage of the Federated Malay States Railways was 559. On that date there were also under construction 389 miles of new line, of which 137 miles, principally in the east coast section, have now been completed, making a total of 696 miles. In addition the railway administration operates under lease the Singapore Railway, 19 miles, and the Johore State Railway, 121 miles, making a total of 836 miles operated by the government. All of these lines have a 3 ft. 3 in. gage, and about 25 per cent. are laid with 80-lb. rails, and the remainder of the lines are laid with 60-lb. rails.

## General News.

The New Jersey State Board of Assessors has increased the valuation of railroad property in that state about 38 millions. The total valuation of all railroad property, as reported this year, is \$324,541,117. The taxes to be paid will amount to \$6,183,530, as against \$5,347,524 last year.

The completion of the Joliet union station and track elevation work by the Chicago, Rock Island & Pacific, Chicago & Alton and Atchison, Topeka & Santa Fe was celebrated at a banquet in the new station on October 14, which was attended by officers of the interested lines. A description of the station and other improvements was published in the *Railway Age Gazette* of April 5, page 789.

Bulletin 117, issued by the Department of Agriculture (forest service), is devoted to forest fires, their causes and prevention. In the introduction it is stated the average annual number of human lives lost in forest fires in the United States is 70 and the value of trees destroyed is at least \$25,000,000. Losses of other property, with deterioration of land, interruption of business and other incidental damage done by forest fires will aggregate many millions more.

The Pennsylvania, the Alton, the St. Paul and the Burlington, jointly interested in the proposed new union station at Chicago, have bought for \$3,500,000, six acres of land on the west side of the Chicago river from the Chicago Utilities Company. This tract is that of the Chicago Dock Coal Company and had been held for some time by the Illinois Tunnel Company for the purpose of establishing a freight terminal in connection with the freight subways. It is said that land will be bought elsewhere for the freight terminal.

Accident bulletin No. 17, which has been issued by the Bureau of Explosives, 30 Vesey street, New York City, contains brief descriptions, ranging from 100 to 500 words each in length, of accidents which have occurred in transportation, such as explosions and fires in freight cars caused by powder, fireworks, fuses, acids, celluloid, gas, gasoline, matches, nitrate of soda, paint, rags and other substances. Chief Inspector Dunn suggests that copies of this bulletin should be distributed among railroad employees who handle freight.

The chief of the police department of the Canadian Pacific west of Winnipeg, acting under a recent order of the vice-president, is organizing a force of 150 railway policemen, every member of which is to be an army veteran. That is to say, the only candidates sought for are men who have served in and have been honorably discharged from the British army or the Royal Northwest Mounted Police. The chief of this department at Winnipeg has two assistants, and there will be a chief inspector and two assistants at each of the division headquarters.

At the closing meeting of the American Association of Railway Surgeons, held in Chicago last week, a resolution was adopted providing for the appointment of a committee to advocate an amendment to the Interstate Commerce law to permit the families of railway surgeons to travel on passes. Drs. S. C. Plummer, chief surgeon of the Chicago, Rock Island & Pacific, Chicago, was elected president of the association. Dr. W. J. Means, of Columbus, Ohio, and J. H. Rishmiller, of Minneapolis, were elected vice-presidents, and Dr. Battle Malone, of Memphis, Tenn., secretary.

At the annual meeting of the stockholders of the New York, New Haven & Hartford at New Haven, on Wednesday of this week, President Mellen announced that the directors had not decided to sell the company's steamboat property. Since July 1, last, the boats have been operated by the New England Steamship Company, a subsidiary of the New England Navigation Company, and for the first time the statistics of traffic are being kept in a way which will enable the company to accurately record the business separate from all other matters. The company does not intend to dispose of the property unless obliged to. A petition will be presented to the Interstate Commerce Commission with the view of getting the consent of that body to the retention of the water lines by the railroad.



company. Discussing the criticisms in the newspapers and elsewhere concerning the action of the company relative to the derailments at Bridgeport last year, and at Westport this year, Mr. Mellen reminded the stockholders that no recommendation of the Interstate Commerce Commission had been disregarded, as no such recommendation had been made. The commission's inspector made a report, but the commission itself never took action on that report. As illustrating another phase of the dangers of travel, Mr. Mellen said that from January 1, 1908, to October 15, of this year, there had been 149 obstructions placed on the tracks of the New Haven road for the purpose of derailing trains. Since the first of last January there have been 61 such cases, or an average of one each week.

#### Are Wages Still Rising?

The street railway company in Springfield, Mass., complying with a decision of arbitrators, following protracted negotiations, has made the maximum pay of its conductors and motormen 28½ cents an hour, which is said to be one cent more than is paid by any other company in New England.

#### An Aviation Record.

A keeper of carrier pigeons in Central Park, New York City, reports that a flock of birds belonging to him which was set free at Niagara Falls, N. Y., last Sunday morning reached New York on the same afternoon, the bird arriving first having flown the distance in 6 hours, 33 minutes. The distance between these two cities by the shortest railway line is about 430 miles; but in a straight line it is only about 300 miles. This makes the rate of speed made by the bird about forty-six miles an hour.

#### Disastrous Derailment in Turkey.

A cable despatch of October 22 reports the derailment of a train carrying soldiers on the railroad between Smyrna and Aidin, in which 200 Turkish soldiers were killed and many others seriously injured. The entire train fell down a bank and every member of the train crew was killed.

#### Health and Safety of Pennsylvania Employees.

The Pennsylvania Railroad has compiled statistics showing the extent to which its employees keep themselves from being injured and preserve their health, with comparisons for a series of years.

The number of injured persons on the rolls of the relief department, per annum, per thousand Pennsylvania Railroad employees, has decreased from 11 in 1902 to 8.3 in 1911. Accidental deaths per thousand employees decreased from 4.9 to 1.9—more than 60 per cent. Statistics averaged once in three years show the following numbers of cases per 1,000 employees:

Year.	Disability.	Deaths.
1902.....	11	4.9
1905.....	9.5	4.4
1908.....	9.1	1.8
1911.....	8.3	1.8

The number of cases of illness among Pennsylvania Railroad employees (members of the relief department) was 35.4 per 1,000 employees in 1902, and in 1911 it had dropped to 29.2. Deaths from sickness were 8.5 per 1,000 employees in 1902 and 7.5 in 1911. During the intervening years there was a steady decrease in the number of cases per 1,000 employees.

These statements of disability cannot be compared with the statements of "persons injured," which are published by the government, as the Pennsylvania's figures represent the proportion constantly disabled (or sick), while the ordinary statistics give the total number of casualties; that is, the total number of different persons who suffer injury.

The Pennsylvania has more than 2,000 active employees who have been on the pay roll more than forty years, and over 1,500 men who served forty years or more and are now receiving pensions from the company. There are more than 4,000 active employees between the ages of sixty and seventy years. There are on the pay-roll or pension list nearly 500 men who have been with the road over fifty years.

The ratios of deaths from accident given in this statement

compare with those reported by the Interstate Commerce Commission for the whole country and for group 2 (New York, New Jersey, Pennsylvania, Delaware, Maryland), as follows:

	EMPLOYEES KILLED PER 1,000 PERSONS EMPLOYED.		
	1908.	1905.	1902.
Pennsylvania R. R. ....	1.8	4.4	4.9
United States .....	2.37	2.43	2.49
Group 2 .....	2.68	2.82	3.09

The years of the railroad company end on December 31, while the government year ends on June 30, but this probably does not make any serious difference in the meaning of the comparisons.

#### How to Season Ties.

The removal of bark hastens seasoning of railroad ties and permits uniform drying. Where an oil like creosote is used as a preservative, the presence of bark on the ties may result in such erratic penetration and absorption as to make the efficiency of the preservative practically zero.

Ties peeled in summer sometimes dry too rapidly, and so "case harden," which increases the difficulty of securing penetration of the preservative. The best time to peel ties, however, is an economic question which must be determined for each particular case. As a general rule, it is good practice to remove the bark as soon as possible after the ties are cut, and regulate the rate of seasoning by methods of piling. In this way, peeling will be easier, there will be less danger from insects, and seasoning will be more rapid.

Of the three common methods of seasoning, namely, by air, by steam, and by oil, the first is best, if conditions will permit its use. Often, however, a treating plant is called upon to fill a rush order when its stock on hand is insufficiently seasoned for treatment, or the plant may be so located that it cannot keep a large stock of air-seasoned material on hand. In such cases artificial seasoning must be practiced.

Seasoning by steam is not as common today as it was a decade ago. Perhaps the chief reason for this is the better knowledge that now exists as to the cause of decay and the effect of steaming on the strength of wood. While steam seasoning increases the weight of ties and necessitates the drawing of a vacuum to get the sap and water out of them, seasoning in oil produces the opposite effect, since the ties constantly lose moisture while in the hot bath, and no vacuum is required. Tests made on 2 in. x 24 in. specimens showed that this method of drying is likely to cause internal checking.—*Bulletin 118, Department Agriculture.*

#### Exhibit at the Railway Electrical Engineers' Convention.

The exhibit of the Railway Electric Supply Manufacturers' Association was held in the hall adjoining the convention hall in the Auditorium Hotel, Chicago. The hall was well arranged and the various products of the exhibitors were attractively displayed. The following is a list of the exhibitors, their exhibits and representatives:

- Adams & Bagnall Electric Company, Cleveland, Ohio.—Bracket type agitator fans. Represented by B. A. Stowe, C. W. Beach and A. J. Selzer.
- Adams & Westlake Co., Chicago.—Semi-concealed and regular train lighting and illuminating fixtures. Represented by G. L. Walters, R. M. Newbold, A. S. Anderson and J. M. Mercer.
- American Pulley Company, Philadelphia, Pa.—Equipment for axle car lighting systems. Represented by W. C. Rudrow, C. Englehart and John Forest.
- Appleton Electric Company, Chicago.—Steel stamped and electrical materials, unilets, condulets and boxes. Represented by R. P. Tillotson.
- Benjamin Electric Manufacturing Company, Chicago.—Industrial lighting fixtures, car receptacles, lighting clusters and lamp grip receptacles. Represented by H. E. Watson, A. E. Lubeck and G. B. Weber.
- Central Electric Company, Chicago.—Okonite wires, cables, tapes and cords, D. & W. fuses, cut-outs and cut-out boxes, Columbia train lamps and Diehl car fans. Represented by W. G. Hovey, R. N. Baker, J. M. Lorenz and F. J. White.
- Crouse-Hinds & Co., Syracuse, N. Y.—Railway and regular condulets, knife switches, panel boards and cabinets and roundhouse reflectors. Represented by E. G. Smith, C. A. Bissell, Bert Hills, Fred Speel and Walter Fogan.
- Cutler Electrical & Manufacturing Company, Philadelphia, Pa.—I. T. E. circuit breakers for train lighting systems. Represented by J. A. Darby.
- Economy Fuse & Manufacturing Company, Chicago.—Economy removable cartridge fuses. Represented by A. L. Eustice, J. B. Griffith and A. E. Triganza.
- Edison Storage Battery Company, Orange, N. J.—Edison storage batteries for train lighting. Represented by H. G. Thompson and C. B. Frayer.

- Electric Storage Battery Company, Philadelphia, Pa.—Chloride & Tudor accumulators, Exide storage batteries for train lighting. Represented by H. E. Hunt, G. H. Atkin, R. I. Baird, P. G. Downton, H. M. Beck and T. Milton.
- Electrical Testing Laboratories, New York.—Projection lantern with series of views illustrating test work. Represented by Preston S. Miller and Norman D. MacDonald.
- Esterline Company, Lafayette, Ind.—Golden Glow lamps and roundhouse reflectors. Represented by O. P. Smith.
- General Electric Company, Schenectady, N. Y.—Mercury arc rectifiers, transformers, generators, ozonator, dynamos and circuit breakers. Represented by C. E. Scribner and C. H. Jones.
- Hess-Bright Manufacturing Company, Philadelphia, Pa.—Ball bearings for axle generators. Represented by W. L. Batt.
- Johns-Manville Co., H. W., New York.—Fuse boxes, insulators, tape, red seal dry batteries, ebony asbestos wood, fibre conduit, indurated fibre materials and linolite fixtures. Represented by J. C. Younglove, P. C. Jacobs, E. A. Hurlbut, D. L. Jennings, H. M. Frantz and L. L. Cohen.
- Kerite Insulated Wire & Cable Company, New York.—Represented by B. L. Winchell, Jr., Capt. Azel Ames, P. W. Miller, J. Warren Young and G. A. Graeber.
- Maine Belting Company, Philadelphia, Pa.—Car lighting belts for axle generators. Represented by W. E. Fawcett and E. F. Deckert.
- National Metal Molding Company, Pittsburgh, Pa.—Metal moldings and fittings; demonstration of the Sherardizing process. Represented by I. A. Bennett, C. W. Abbott, Walter Rardin, H. C. Moran and Thos. Liggett, Jr.
- Norma Company of America, New York.—Roller bearing for axle generating sets. Represented by K. Langnickel.
- Oneida Steel Pulley Company, Oneida, N. Y.—Corrugated bushings for tapered and straight axles; Keystone railroad pulley. Represented by W. G. Stark.
- Pass & Seymour, Inc., Solvay, N. Y.—Electric wiring devices, Sherlock sockets, conduit boxes and receptacles. Represented by F. T. Haffner, Victor Despard and Frank Driscoll.
- Pyle-National Electric Headlight Company, Chicago.—New type E equipment for locomotive headlights; complete turbo generator-arc lamp, case and reflector for locomotive headlights. Represented by J. W. Perry, C. P. McGinnis, J. E. Kilker and H. P. Baylev.
- Safety Car Heating & Lighting Company, New York.—Car lighting fixtures, six control panel and switchboard, storage battery locomotive headlight, ball bearing dynamos. Represented by A. C. Moore, J. G. VanWinkle, C. E. Miller, C. A. Pinyard and G. A. Hulze.
- Sangamo Electric Company, Springfield, Ill.—Ampere hour meters, switchboard watt-hour meters and variable resistor type meters. Represented by J. H. Hodde and Scott Lynn.
- Thompson Electric Company, Cleveland, Ohio.—Safety cut-out hanger for arc lamps and large mill tungstens. Represented by A. J. Thompson.
- U. S. Lighting & Heating Company, Niagara Falls, N. Y.—National storage batteries, car lighting fixtures and axle generating sets. Represented by Wm. Bauer, W. L. Bliss, O. C. Bradford, L. S. Cunniff, R. C. Haley and Wm. P. Hawley.
- Western Electric Company, Chicago.—Train lighting equipments, lamps and portable porcelain lamps. Represented by Geo. Porter and C. A. Keen.
- Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa.—D. C. auto controllers, transformers, flaming arc lamps, fuses, car lighting equipment and lamps. Represented by W. S. Storer, R. F. Moon, B. F. Fisher, H. C. Mode, R. E. S. Geare, Edgar Sweitzer and Arthur J. Cole.
- Willard Storage Battery Company, Cleveland, Ohio.—Willard storage batteries for train lighting. Represented by T. A. Willard, R. C. Norberg, W. E. Ballantine, F. S. Gossoway, L. Sears and C. C. Burnell.
- Wray Publishing Company, Chicago.—*The Railway Electrical Engineer*. Represented by Edward Wray and George W. Cravens.

#### Railway Business Association Dinner.

The fourth annual dinner of the Railway Business Association will be held December 19, at the Waldorf-Astoria Hotel, New York. The speakers will be James J. Hill and the Hon. W. L. Mackenzie King, former Canadian minister of labor. Mr. Hill will discuss the needs of the country for more and better railway facilities and the financial ability of the roads to meet those needs. At this juncture, when the country is having a painful reminder of the inefficiency of carrying facilities, Mr. Hill's acceptance, changing his previous arrangements in order to be in the United States for the dinner, is a high compliment to this association as a movement and as an organization which provides annually a striking occasion for the delivery of important pronouncements.

Mr. King is regarded as one of the highest authorities in the world on the relations of the public to labor disputes. He is the author of the much discussed Canadian Industrial Disputes Investigation Act, the basis for a law recently enacted by the Union of South Africa, and now under investigation for use in England. Mediation between railways and their employees has formed a large part of the operations under the Canadian act, so what Mr. King may say will have special interest for American business men.

Attention is called to the fact that as there will be but two speakers and the dinner this year will absolutely begin promptly at 7 o'clock, the program will be concluded earlier than heretofore. Instead of laying between 800 and 900 covers as heretofore, the seats will be restricted to 633, in order to be sure that every table will be within earshot of the speakers.

#### National Association of Railway Commissioners.

The annual convention of the National Association of Railway Commissioners will be held in Washington, D. C., November 19. There will be a special discussion on Methods and Practices; Not What the Commissions Have Done But How They Do It. In addition to the report of the executive committee there will be reports on Car Service and Demurrage; Delays Attendant Upon Enforcing Orders of Railway Commissions; Grade Crossing and Trespassing on Railroads; Legislation; Railroad Taxes and Plans for Ascertaining Fair Valuation of Railroad Property; Rates and Rate Making; Railway Capitalization; Statistics and Accounts; Safety Appliances; Telegraph and Telephone Rates and Service; Uniform Classification and Simplification of Tariff; Accounts and Statistics of Electric Railways; Amendment of Act to Regulate Commerce; Express Rates and Express Service; Power, Duty and Work of State Railway Commissions; Railway Service and Railway Accommodation; Shippers' Claims; Rails and Equipment.

#### American Association of Passenger Agents.

At the meeting of the American Association of Passenger Agents, officers were elected as follows: President, A. W. Fritot, division passenger agent, Atlantic Coast Line at Jacksonville, Fla.; vice-president, C. A. Melin, district passenger agent, New York, Chicago & St. Louis at Denver, Col.; secretary, Elliott Monett, general western agent, New York, Ontario & Western at Chicago.

#### The Cleveland Engineering Society.

At the special October meeting of the Cleveland Engineering Society, held October 22, G. F. Ahlbrandt presented an illustrated paper entitled Ingot Iron versus Steel. Mr. Ahlbrandt is connected with the American Rolling Mill Company, Middletown, Ohio.

#### MEETINGS AND CONVENTIONS.

*The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.*

- AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass. Convention, May 6-9, St. Louis, Mo.
- AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Boston, Mass.
- AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, New York.
- AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, St. Louis, Mo.; 3d Friday of March and September.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York.
- AMERICAN ELECTRICAL RAILWAY MANUFACTURERS' ASSOC.—George Keegan, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.
- AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York; semi-annual, November 20, 1912, Chicago.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Convention, 3d week in Oct., Baltimore, Md.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Convention, March 18-20, 1913, Chicago.
- AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—M. H. Bray, N. Y. N. H. & H., New Haven, Conn.
- AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.; annual, June, 1913.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.
- AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wemlinger, 13 Park Row, New York; 2d Tuesday of each month, New York.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Baltimore, Md. Convention, 3d week in January, 1913, Chicago.
- ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago.
- ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 112 West Adams St., Chicago; annual, May 20, 1913, St. Louis, Mo.
- ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York. Meeting Dec. 10-11, 1912, New Orleans, La.
- CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and Aug., Montreal.



## Traffic News.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursdays, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.

CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—L. S. Pomeroy, Old State Capitol building, St. Paul, Minn.; 2d Monday, except June, July, August and September, St. Paul.

ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 803 Fulton building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.

INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, 11, rue de Louvain, Brussels, Belgium. Convention, 1915, Berlin.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, 922 McCormick building, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, Brown Marx building, Birmingham, Ala.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio.

MAINTENANCE OF WAY MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—W. G. Wilson, Lehigh Valley, Easton, Pa. Convention, November 19-21, Chicago.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York. Convention, May 26-29, 1913, Chicago.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOC. OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass.

NATIONAL RAILWAY APPLIANCE ASSOC.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Meetings with Am. Ry. Eng. Assoc.

NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.

NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.

NORTHERN RAILROAD CLUB.—C. L. Kennedy, C. M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill.; 2d Tuesday.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 2 Rector St., New York; annual, November 20, 1912, New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOC.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc. Ry. Elec. Engrs.

RAILWAY GARDENING ASSOCIATION.—J. S. Butterfield, Lee's Summit, Mo.

RAILWAY DEVELOPMENT ASSOCIATION.—W. Nicholson, Kansas City Southern, Kansas City, Mo. Next meeting, Nov. 17, 1912, Cincinnati, Ohio.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio.

RAILWAY SUPPLY MANUFACTURERS' ASSOC.—J. D. Conway, 2135 Oliver bldg., Pittsburgh, Pa. Meetings with M. M. and M. C. B. Assocs.

RAILWAY TEL. AND TEL. APPLIANCE ASSOC.—W. E. Harkness, 284 Pearl St., New York. Meetings with Assoc. of Ry. Teleg. Sups.

RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.

TOLEDO TRANSPORTATION CLUB.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.

TRAFFIC CLUB OF CHICAGO.—Guy S. McCabe, La Salle Hotel, Chicago; meetings monthly, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library building, St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago.

TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.

UTAH SOCIETY OF ENGINEERS.—R. B. Ketchum, University of Utah, Salt Lake City, Utah; 3d Friday of each month, except July and August.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Monday in month, except July and August, Chicago.

The annual meeting of the National Industrial Traffic League will be held at the Hotel LaSalle, Chicago, on November 24.

Beginning November 1 the Illinois Central will run sleeping cars through between Chicago and San Antonio, Tex., in connection with the Missouri, Kansas & Texas.

The Michigan State Railroad Commission has under consideration a proposition to authorize the collection of \$5 a day demurrage on cars used in intrastate traffic, with the view to relieving the car shortage.

The Traffic Club of Chicago gave a farewell luncheon on October 15, to B. C. Stevenson, vice-president of the Toledo, St. Louis & Western, who has moved from Chicago to Toledo, and J. A. Tapee, assistant traffic manager, Nelson Morris & Company, who has been transferred to Kansas City.

The autumn freight congestion has already appeared in Western Canada. The Winnipeg Board of Trade is said to be receiving numerous complaints from the farmers west of that city, who say that grain is not being moved promptly and that the railroads already have more business than their locomotives can haul.

The steamship Verdi, sailing from New York for South America, last Saturday, carried 2,700 bbls. of apples and 8,190 boxes of pears to Rio de Janeiro and Buenos Ayres. The cargo aggregated 1,000 tons. It came from the states of Washington, California, Rhode Island and Virginia. The pears from California and the apples from Washington will have traveled, when they have reached their destination, about 9,000 miles.

The Southern Pacific is understood to be planning to dispose of its holdings in water lines, or to take such action as compliance with the law may require. It is understood that the desire of the company is to retain an interest in the Pacific Mail Steamship Company and to dispose of its shares to Southern Pacific stockholders on a pro rata basis, while retaining a liberal block for itself, with the stipulation that each shall dispose of a certain amount of holdings and so scatter a majority of the capital stock. The amount which the S. P. would retain would be about 25 or 30 per cent. It is desirable to maintain close friendly relations with the steamship line, and there should be a profitable traffic alliance.

The federal government is to look after the health of the traveling public. An order just issued by the Treasury Department at Washington directs the head of the Public Health Service to make "a thorough inspection of the sanitary features of railroad trains and vessels engaged in interstate commerce." Authority for undertaking this work is derived from a law passed at the last session of Congress enlarging the powers of the Public Health Service. The instructions issued to the medical officers by the Treasury Department require them "to examine into and report upon the conditions of railway coaches, chair cars, parlor cars, dining cars, express and baggage cars, and the various sections of steamships to which passengers are admitted." In carrying out this work the Service will ask the co-operation of the Interstate Commerce Commission and also of the public health boards of the various states.

### Car Surpluses and Shortages.

Arthur Hale, chairman of the committee on relations between railroads of the American Railway Association, in presenting statistical bulletin No. 129, giving a summary of car surpluses and shortages by groups from June 21, 1911, to October 10, 1912, says: The total surplus on October 10, 1912, was 22,810 cars; on September 26, 1912, 26,754 cars; and on October 11, 1911, 48,854 cars. Compared with the preceding period; there is a decrease in the total surplus of 3,944 cars, of which 3,650 is in box, 285 in flat, 306 in miscellaneous and an increase of 297 in coal car surplus. The decrease in box car surplus is shown in groups 6 (Iowa, Illinois, Wisconsin and Minnesota); 7 (Montana, Wyoming, Nebraska and the Dakotas); 8 (Kansas, Colorado, Oklahoma, Missouri and Arkansas); 9 (Texas, Louisiana, and New Mexico); 10 (Washington, Oregon, Idaho, California,

Nevada and Arizona), and 11 (Canadian lines). The decrease in flat car surplus is general throughout the country, excepting in groups 3 (Ohio, Indiana, Michigan and Western Pennsylvania), 4 (The Virginias and Carolinas), and 6 (as above). The decrease in miscellaneous car surplus is in groups 2 (New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania), 5 (Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida), 6, 8, 9 and 10 (as above). The increase in coal car surplus appears in groups 2 and 4 (as above).

The total shortage on October 10, 1912, was 54,389 cars; on September 26, 1912, 44,547 cars; and on October 11, 1911, 12,957 cars. Compared with the preceding period; there is an increase in the total shortage of 9,842 cars, of which 5,455 is in box, 507 in flat, 3,186 in coal and 694 in miscellaneous. The increase in box car shortage prevails throughout the country, excepting in groups 6 and 10 (as above). The increase in flat car shortage is general, excepting in groups 2, 3, and 11 (as above). The

### INTERSTATE COMMERCE COMMISSION.

The commission has ruled that regulations governing bills of lading for export traffic must be published in freight tariffs.

The commission has ruled that interest may and should be paid on overcharge claims from the time when the bill was collected.

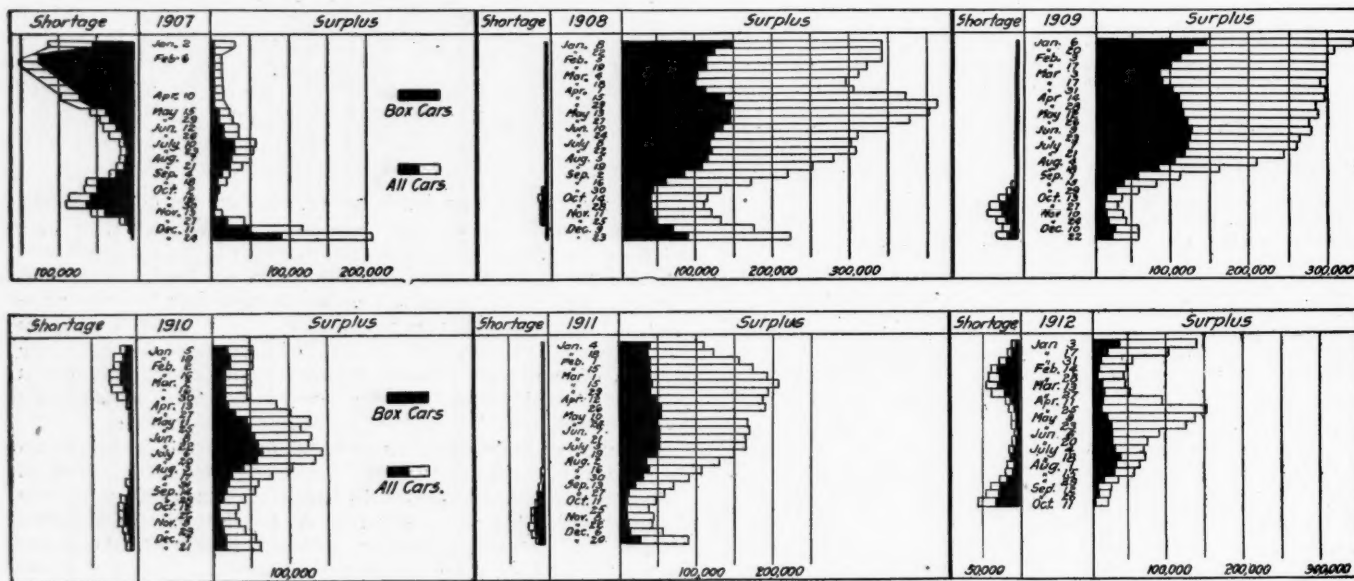
The commission has suspended until April 29 the tariffs which have been filed by the principal railways increasing the charges for extra baggage. The increases in question are those based on the size of trunks, the tariffs prescribing an additional charge of 10 lbs. for each inch in the length of a trunk beyond 45 in. This change has been under consideration for many months, some traveling salesmen having made strenuous objection to it.

The commission has suspended from October 12, until February 8, the two items of the supplement to Chicago, Milwaukee

CAR SURPLUSES AND SHORTAGES.

Date.	No. of roads.	Surpluses				Shortages			
		Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.	Box.	Flat.	Coal, gondola and hopper.
Group *1.—October 10, 1912.....	7	0	22	0	100	122	1,143	370	846
" 2.—" 10, 1912.....	26	411	39	1,659	381	2,490	3,128	46	2,732
" 3.—" 10, 1912.....	28	0	175	200	210	585	5,395	58	3,799
" 4.—" 10, 1912.....	11	0	56	543	628	1,227	3,687	733	3,128
" 5.—" 10, 1912.....	21	10	0	215	403	628	3,487	1,203	1,997
" 6.—" 10, 1912.....	25	3,617	101	1,319	2,714	7,751	3,060	365	1,139
" 7.—" 10, 1912.....	3	0	29	38	374	441	984	0	159
" 8.—" 10, 1912.....	17	16	44	502	1,536	2,098	3,786	459	758
" 9.—" 10, 1912.....	12	320	72	229	289	910	2,161	222	301
" 10.—" 10, 1912.....	22	321	490	1,786	3,461	6,058	2,840	274	38
" 11.—" 10, 1912.....	7	6	51	0	443	500	3,078	346	0
Total, October 10, 1912.....	179	4,701	1,079	6,491	10,539	22,810	32,749	4,076	14,897
" October 11, 1911.....	160	10,487	3,661	16,496	18,210	48,854	10,090	1,083	1,512
" October 12, 1910.....	151	8,856	2,085	6,034	16,760	33,735	12,153	1,199	5,433
" October 13, 1909.....	175	14,991	3,735	5,530	11,721	35,977	14,693	1,367	5,100

\*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan and Western Pennsylvania lines; Group 4—West Virginia, Virginia, North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida lines; Group 6—Iowa, Illinois, Wisconsin, Minnesota and the Dakotas lines; Group 7—Montana, Wyoming and Nebraska lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Oregon, Idaho, California and Arizona lines; Group 11—Canadian lines.



Car Surpluses and Shortages in 1907 to 1912.

increase in coal car shortage is shown in groups 2, 3, 4, 5, 7, 8, 9 and 10 (as above). The increase in miscellaneous car shortage is chiefly in groups 2, 3, 4, 5, 6, 8 and 10 (as above).

Compared with the same date of 1911; there is a decrease in the total surplus of 26,044 cars, of which 5,786 is in box, 2,582 in flat, 10,005 in coal and 7,671 in miscellaneous. There is an increase in the total shortage of 41,432 cars, of which 22,659 is in box, 2,993 in flat, 13,385 in coal and 2,395 in miscellaneous cars.

The accompanying table gives car surplus and shortage figures by groups for the last period covered in the report, and totals for the country for corresponding dates in previous years; and the diagram shows total bi-weekly surpluses and shortages from 1907 to 1912.

& St. Paul tariff, which would advance from 11 cents per 100 lbs., minimum weight 30,000 lbs., to 13 cents per 100 lbs., minimum weight 36,000 lbs., a proportional commodity rate for the transportation of starch, in carloads, from Boone and Cedar Rapids, Ia., to Atchison and Leavenworth, Kan., and Kansas City, Sugar Creek and St. Joseph, Mo., when for points beyond.

The Interstate Commission, on October 23, issued a supplemental order affecting differential freight rates to and from New York, Boston, Baltimore and Philadelphia; the new rates to become effective January 1. The commission in its former order had no intention of changing the differentials on flour or on iron and steel articles for export. In the supplemental



opinion, the commission so amends its previous findings as to prescribe definitely that the differentials to Baltimore and Philadelphia under the New York rates shall not be greater than they now are. The modified order also affects the westbound rates from Boston and New York on imported freight. By the standard all rail lines and the standard rail and lake lines, the import rate from Boston must be the same as from New York. If the New York differential ocean and rail route via New London and the Central Vermont is open or opened to import traffic from Boston, the import rates from Boston must be the same as from New York. The differential rail routes from Boston via the Boston & Maine and Boston & Albany in connection with the Canadian Pacific and National Despatch lines may charge the same from Boston on import traffic as on domestic. The differential rail-and-lake route from Boston, via the Boston & Maine, Grand Trunk and Canada-Atlantic Transit companies' lines, may make import rates from Boston the same as the domestic rates.

#### Increased Switching Charges on Ice Found Discriminatory.

*In re investigation and suspension of advances in charges by carriers for switching ice in carloads at Chicago and vicinity. Opinion by Commissioner Clark:*

About a year ago carriers, including the Chicago, Milwaukee & St. Paul, the defendant, filed increased rates on ice from Wisconsin points to Chicago, and while the question of the reasonableness of those rates was pending before the commission, the carriers voluntarily withdrew the tariffs. A readjustment of switching charges on ice at Chicago was effected, by which the charges to Morris & Company, the complainant, for delivery on the tracks of the Lake Shore & Michigan Southern were increased \$2 per car. The proposed increase in the rates to Chicago, which was withdrawn, would have applied to all shippers of ice. Under the new schedule of the Chicago, Milwaukee & St. Paul, which has been suspended, it appears that the increased charge would apply only to the complainant. The commission found that these charges were unjustly discriminatory and ordered the withdrawal of the protested tariff. (24 I. C. C., 660.)

#### Cooperage Rates Not Increased.

*In re investigation and suspension of advances in rates by carriers for the transportation of cooperage from Salt Lake City, Utah, to Chicago and between other points. Opinion by Commissioner Clark:*

The commission found that the increased rates on cooperage from St. Louis, Mo., and other points to Utah common points, which were suspended until January 6, 1913, are actually lower than the rates prescribed by it in *Commercial Club, Salt Lake City v. Atchison, Topeka & Santa Fe*, 19 I. C. C., 218, and therefore were not unreasonable. The order of suspension was vacated. (24 I. C. C., 656.)

#### STATE COMMISSIONS.

On complaint by the transportation bureau of the Tacoma Commercial Club and the Chamber of Commerce, the Public Service Commission of the state of Washington has issued an order suspending for 90 days the new class and distributive rate tariff published by the Great Northern, advancing a large number of rates from Tacoma.

The Pennsylvania State Railroad Commission has received a complaint from the inmates of the Blind Men's Working Home at Philadelphia, protesting against the rule of the Pennsylvania Railroad that blind persons shall not be permitted to travel on the cars of the road except when accompanied by a guide. The petitioners say that they are always able to get volunteer assistance from other travelers.

The Washington Public Service Commission has promulgated reciprocal demurrage rules subjecting railways to a charge of \$1 per car per day for failure to furnish cars ordered by shippers within six days of the date of application, or within three days at Seattle and other terminal points. The rules also

require that freight shall be transported at a rate of not less than 50 miles a day, except on branch lines.

The Travelers' Protective Association has won its long contest for linen covers. The Railroad Commission of Louisiana, acting on the association's complaint, and after a "full, fair and impartial investigation," has ordered all railways in that state to furnish and use linen covers, or covers made of suitable washable material, for seats and backs of seats in all coaches upholstered with plush, these covers to be used and kept in a clean and sanitary condition, the order to be in effect from May 15 to October 15, inclusive, of each year.

The Minneapolis Civic and Commerce Association has filed with the Minnesota railroad commission briefs attacking the five switching roads of Minneapolis and St. Paul, asking to have them declared the regular terminals of the nine roads entering the Twin Cities. The defendant switching roads are the Minnesota Railway Transfer Company, Minneapolis Eastern, Minneapolis Western and Railway Transfer Company. It is charged that the railways by setting apart portions of their own terminals and creating separate corporations to hold them have made possible the transfer of cars from the roads to the transfer companies with accompanying switching charges to be paid by the shippers.

#### COURT NEWS.

##### Commerce Court.

The Southern Pacific filed, on October 17, its petition asking the Commerce Court to enjoin the Interstate Commerce Commission against the enforcement of the fourth section, order No. 1305. In this order the Interstate Commerce Commission refused to grant the Southern Pacific permission to continue to charge certain higher rates to points intermediate between San Francisco and Portland than are charged between San Francisco and Portland, and prescribed certain maximum rates (higher than the rates for the longer distance) which might be charged to these intermediate points. The commission found that the rates between Portland and San Francisco were forced to an unreasonably low scale because of water competition, but refused to permit the Southern Pacific to charge as high rates to intermediate points as it had been charging and fixed a scale of its own for these intermediate rates.

The Southern Pacific asks that the order be enjoined in the first place because the fourth section is unconstitutional "in that by said section as amended, Congress has assumed to delegate legislative powers to said commission; that by said section so amended, said commission is empowered arbitrarily to grant or withhold leave to charge less for the longer than for the shorter haul for like commodities over the same line in the same direction, and that no standard is supplied by said section or by any of the provisions of said act to regulate commerce for the guidance or control of said commission in passing upon applications . . . ."

The Southern Pacific also asks the court to enjoin the enforcement of the order even if the fourth section should be found to be constitutional, because in this particular case the commission has exceeded its powers, in that it has lowered rates which were not attacked as unreasonable in themselves, but which were considered in connection with the hearing on a fourth section application in which the commission found that the statement of the Southern Pacific that water competition compelled the lower rate for the longer distance was well founded.

**NEW LINES PROPOSED FOR BULGARIA.**—A preliminary study is being made of a proposed line from Plevna, in northern central Bulgaria, south to Trojan, via Lovatz, about 42 miles.

**NORTH COAST RAILWAY, NEW SOUTH WALES.**—Work on the third section of the North Coast Railway, which was retarded by the late heavy rains, is now proceeding rapidly.

**SUEZ CANAL TRAFFIC.**—During August 409 ships passed through the Suez Canal as compared with 364 ships in August, 1911, and 337 ships in August, 1910.

## REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF AUGUST, 1912.

Name of road.	Average mileage operated during period.	Operating revenues				Operating expenses				Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Inc. misc.	Total.	Way and structures.	Maintenance of equipment.	Traffic.	Trans- portation.	General.	Total.			
Atlantic City .....	167	\$72,749	\$279,768	\$368,528	\$72,749	\$18,529	\$9,383	\$2,416	\$139,337	\$1,452	\$171,117	\$9,000	\$184,075	\$29,803
Atlanta & West Point .....	93	48,420	103,780	152,200	48,420	15,863	3,950	5,540	32,550	4,512	77,657	20,732	77,657	6,472
Belt Ry. Co. of Chicago .....	21	46,064	274,609	320,673	46,064	15,179	3,271	6,222	97,296	4,261	154,034	10,572	110,999	15,005
Buffalo & Susquehanna R. R. ....	265	144,211	11,235	155,446	144,211	29,951	22,711	1,230	50,930	6,120	110,940	2,200	46,467	4,854
Buffalo & Susquehanna Ry. ....	91	47,459	12,992	60,451	60,451	10,285	28,939	555	23,416	3,029	66,204	1,500	4,806	809
Central New Jersey .....	669	1,983,758	618,716	2,741,559	2,741,559	226,160	353,449	34,323	740,715	42,164	1,396,811	128,298	1,222,731	344,157
Central Vermont .....	411	227,861	134,601	362,462	362,462	54,926	37,371	9,027	166,812	7,272	295,408	12,200	85,387	8,135
Chicago & Erie .....	270	361,362	71,010	432,372	432,372	99,691	106,142	19,214	230,526	10,534	466,107	12,895	48,993	90,408
Chicago, Rock Island & Gulf .....	477	170,709	54,770	225,479	225,479	45,504	22,956	11,072	86,993	7,955	173,720	8,122	60,457	13,008
Detroit & Toledo Shore Line .....	79	107,240	.....	.....	107,240	21,780	6,482	1,142	28,923	2,174	60,501	4,650	42,614	4,523
Duluth & Iron Range .....	274	1,031,161	21,059	1,052,220	1,052,220	107,091	66,601	1,590	186,686	9,540	371,508	47,335	645,553	53,937
Erie .....	1,988	3,578,837	1,034,459	4,613,296	4,613,296	602,076	775,495	96,513	1,436,137	80,063	2,990,284	138,546	1,817,179	217,786
Georgia .....	307	148,739	93,882	242,621	242,621	31,301	50,770	12,082	125,752	7,721	227,626	2,520	30,054	27,239
Hocking Valley .....	352	601,423	112,574	713,997	713,997	80,755	140,552	9,414	201,379	13,138	445,238	34,800	284,417	9,897
International & Great Northern .....	1,160	623,812	248,890	872,702	872,702	134,550	126,190	27,210	348,490	31,138	667,578	30,000	226,070	.....
Kansas City Southern .....	827	687,548	157,654	845,202	845,202	96,364	121,722	23,388	282,646	27,698	551,848	35,842	348,060	106,476
Louisiana Western .....	208	132,525	53,925	186,450	186,450	16,847	16,847	7,237	56,794	5,125	117,645	6,828	70,208	18,479
Morgan's La. & Tex. R. R. & S. Co. ....	404	246,122	93,222	339,344	339,344	108,414	64,488	13,506	145,351	9,445	341,204	18,370	1,321	73,968
New Orleans, Mobile & Chicago .....	547	147,837	34,838	182,675	182,675	32,059	18,601	7,439	128,514	7,439	128,514	4,158	62,227	16,333
New Orleans, Texas & Mexico .....	277	86,794	18,554	105,348	105,348	22,064	13,496	3,898	56,855	6,502	102,815	3	11,693	9,554
New York, Susquehanna & Western .....	154	155,980	58,541	214,521	214,521	37,013	37,863	1,524	95,795	3,911	176,106	17,648	41,709	48,737
Oahu Ry. & Land Co. ....	101	107,256	22,772	130,028	130,028	10,795	6,211	4,999	23,700	3,411	44,616	6,500	83,737	13,808
Philadelphia & Reading .....	1,015	3,434,240	709,112	4,143,352	4,143,352	425,138	718,341	46,119	1,290,237	57,867	2,537,702	87,123	1,774,241	633,737
Port Reading .....	21	124,846	.....	.....	124,846	11,155	859	30	31,345	105	41,776	8,000	78,409	32,897
San Antonio & Aransas Pass .....	727	332,806	144,060	476,866	476,866	49,946	67,273	6,031	148,179	10,001	281,430	12,000	204,153	10,675
Toledo, St. Louis & Western .....	451	309,065	39,707	348,772	348,772	61,390	57,510	6,741	112,130	8,364	246,135	14,800	109,880	15,695
Ulster & Delaware .....	129	59,021	75,698	134,719	134,719	19,001	13,220	1,545	48,660	2,294	84,660	3,300	53,071	10,203
Washington .....	2,515	1,966,359	762,759	2,729,118	2,729,118	368,228	446,799	91,398	1,013,656	63,823	1,983,944	71,655	879,499	147,874
Western Maryland .....	543	522,559	119,432	641,991	641,991	81,963	84,419	14,243	237,527	10,606	428,758	20,000	219,885	20,220
Western Ry. of Alabama .....	133	47,418	48,400	95,818	95,818	22,434	21,403	5,662	31,912	5,207	86,618	4,640	12,880	8,375
Wheeling & Lake Erie .....	459	667,907	79,597	747,504	747,504	83,799	132,811	8,604	213,200	12,825	451,239	30,599	307,350	26,731
Western Pacific .....	937	388,146	135,193	523,339	523,339	95,470	54,381	29,854	198,276	24,805	402,786	19,833	121,895	17,428
Trinity & Brazos Valley .....	463	119,292	59,768	179,060	179,060	41,559	29,418	10,448	83,270	9,839	174,534	4,000	9,080	4,776

Average mileage operated during previous period—1 672; 2 263; 3 1,995; 4 404; 5 264; 6 152; 7 99; 8 457. — Indicates Deficits, Losses and Decreases.

## Railway Officers.

## ELECTIONS AND APPOINTMENTS.

## Executive, Financial and Legal Officers.

Robert J. McMillan has resigned as assistant general attorney of the St. Louis, Brownsville & Mexico.

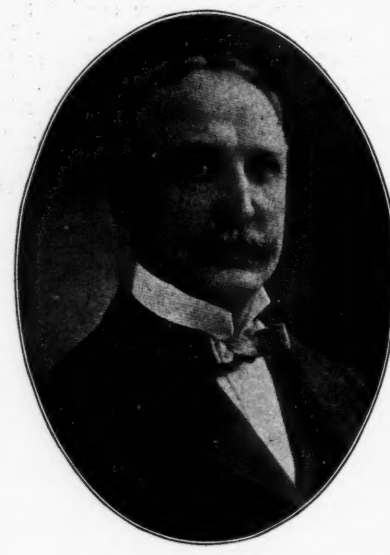
Charles H. Hix, vice-president and general manager of the Seaboard Air Line, resigned yesterday, effective November 1.

H. W. Colson has been appointed general claim agent of the Atlanta, Birmingham & Atlantic, in charge of all claim matters, with headquarters at Atlanta, and M. T. Sollar has been appointed assistant general claim agent. The office of freight claim agent has been abolished.

Frank B. Carpenter, assistant general counsel of the New York, Chicago & St. Louis, has been appointed general counsel, with headquarters at Cleveland, Ohio, succeeding J. H. Clarke, resigned. Herbert D. Palmer succeeds Mr. Carpenter as assistant general counsel, with office at Cleveland.

Marsden J. Perry has been elected chairman of the board of the Norfolk Southern. Richard H. Swartwout has been elected vice-president, succeeding Frederick Hoff, resigned, and James T. Avery, agent at New York, has been elected also assistant secretary, succeeding N. W. Runnion, resigned, all with offices at New York.

William Rice Taylor, whose resignation as secretary of the Philadelphia & Reading, and as vice-president and secretary of the Reading Company, has been announced in these columns was



W. R. Taylor.

born on May 22, 1856, at Schuylkill Haven, Pa., and was educated in the public schools of Philadelphia. He began railway work on December 26, 1871, as junior clerk in the office of President Franklin B. Gowen of the Philadelphia & Reading Railroad. He was elected secretary of that company in January, 1886, remaining in that position until the dissolution of the company in 1896, and since November 17, of the same year, has been secretary of its successor, the Philadelphia & Reading Railway, until his retirement on October 14. He was also secretary of the Reading company from June 7, 1892, to February 17, 1897, when he became vice-president, and since from January 15, 1902, to October 14, 1912, was also secretary of the same company. The Reading Company is the proprietary company owning the capital stock of the Philadelphia & Reading Railway, the Philadelphia & Reading Coal & Iron Company, the Central Railroad of New Jersey, the Atlantic City Railroad, the Perkiomen Railroad, and a large number of other transportation companies. Mr. Taylor took a prominent part in organizing the Reading system. He was also secretary of nearly all the branch lines in the Reading system, and in addition was president of the Eastern Real Estate Company, and the Philadelphia Grain Elevator Company, and a director of the Catawissa Railroad.

George Ziegler, whose election as secretary of the Philadelphia & Reading has been announced in these columns, has been elected also vice-president of the Reading Company, succeeding W. R. Taylor, resigned. William H. White has been appointed comptroller of the Philadelphia & Reading and subsidiary companies, also of the Reading Company, succeeding Mr. Ziegler.



L. E. Myers, vice-president of the Chicago, Anamosa & Northern, has been elected president, with headquarters at Chicago, succeeding Henry Kiene, resigned. Peter Kiene has been elected vice-president in place of Mr. Myers, with headquarters at Anamosa, Ia., and Clifford L. Niles has been made treasurer, with office at Anamosa, succeeding Paul Kiene, resigned. G. E. Farmer has been appointed auditor, with office at Anamosa, to succeed H. Miller, promoted.

Jay V. Hare, whose election as secretary of the Reading Company and assistant secretary of the Philadelphia & Reading, with headquarters at Philadelphia, Pa., has been announced in these columns, was educated at the High School at Johnstown, N. Y., and at the University of the State of New York, at Albany. He began railway work on September 8, 1897, with the Philadelphia & Reading, as office boy in the general passenger department, and from June, 1898, to January, 1899, was junior clerk in the same department. He was then clerk in the secretary's department, until January, 1906, and later was made chief clerk of that department, which position he held at the time of his recent election as secretary of the Reading Company and as assistant secretary of the Philadelphia & Reading, as above noted.

T. M. Schumacher, traffic manager of the American Smelting & Refining Company, has been elected vice-president of the El Paso & Southwestern system, in charge of all departments, with headquarters at New York, effective November 1. Mr. Schumacher was born February 16, 1862, at Williamsport, Pa., and began railway work in 1879 as telegraph operator for the Atlantic & Great Western. The following year he went with the Cleveland, Columbus, Cincinnati & Indianapolis as freight clerk, and later was brakeman and fireman on the Pittsburgh, Cincinnati & St. Louis, then bill clerk for the Chicago, Burlington & Quincy, until 1883, when he entered the employ of the Missouri Pacific at St. Louis, Mo., as bill clerk. He was chief clerk of the St. Louis local office of that road until 1885, when he returned to the Cleveland, Columbus, Cincinnati & Indianapolis, and during the following two years served as cashier, chief clerk and contracting agent at St. Louis. In 1887 he became chief clerk in the office of the general agent of the Union Pacific at Omaha, Neb., and three years later was made general agent of that road at San Francisco, Cal., which position he held four years. He was subsequently for two years vice-president and general manager of the Continental Fruit Express, with headquarters at Chicago, with the exception of about six months from November 1, 1900, to April 1, 1901, when he resumed his former position. Mr. Schumacher was then until September, 1905, traffic manager of the Oregon Short Line, and subsequently for a short time was traffic manager of the United Fruit Company at New York. In 1906 he was made general traffic manager of the railroads and industrial companies controlled by Phelps, Dodge & Company of New York, with headquarters at Chicago, where he remained until December 1, 1909, when he resigned to accept the vice-presidency of the Denver & Rio Grande and Western Pacific, with office at San Francisco. Mr. Schumacher was appointed assistant director of traffic of the Union Pacific and Southern Pacific systems on May 1, 1910, with headquarters at Chicago, and on December 1 of that year became traffic manager of the American Smelting & Refining Company and its allied companies, with office at New York, which position he now resigns to become vice-president of the El Paso & Southwestern system, as above noted. Mr. Schu-



T. M. Schumacher.

macher is also vice-president of the Nevada Northern and Bingham & Garfield.

#### Operating Officers.

J. A. Clancy has been appointed assistant superintendent of terminals of the Grand Trunk, with office at Milwaukee Junction, Mich.

B. C. Long has been appointed assistant superintendent of the Sonora division of the Southern Pacific of Mexico, with headquarters at Empalme, Sonora, Mexico.

Harry C. Owen, superintendent of the Northern Railway (Costa Rica), with office at Limon, having resigned, J. A. Fairbairn has been appointed acting superintendent, with office at Limon.

E. B. Rock, Jr., has been appointed superintendent transportation of the Atlanta, Birmingham & Atlantic, with headquarters at Atlanta, Ga., and the office of car accountant has been abolished.

The headquarters of C. E. Collins, general superintendent of the Chicago, Anamosa & Northern, have been removed from Coggon, Ia., to Anamosa. He will have direct charge of operation, construction and maintenance.

L. F. Lonnbladh, chief engineer of the Tennessee Central at Nashville, Tenn., has been appointed superintendent, with office at Nashville, succeeding L. S. Bourne, resigned to accept services elsewhere, and W. H. Beeland has been appointed assistant superintendent.

E. A. Sollitt, trainmaster of the Wabash at Moberly, Mo., has been transferred to Decatur, Ill., as trainmaster, and John Cook, trainmaster, with office at Moulton, Ia., succeeds Mr. Sollitt. J. P. Shields, trainmaster at Kansas City, Mo., succeeds Mr. Cook.

J. A. Blackburn has been appointed trainmaster of the Western division of the Atchison, Topeka & Santa Fe, with office at Dodge City, Kan., in place of W. C. Ashcraft, resigned. Mr. Blackburn heretofore has been chief dispatcher and operator of the Western division.

A. G. Abell, superintendent of the Louisiana division of the St. Louis, Iron Mountain & Southern, with headquarters at Monroe, La., has been appointed superintendent of the Louisiana Railway & Navigation Company, with office at Shreveport, La., succeeding W. H. Coppage.

W. H. Farrell, terminal superintendent of the Grand Trunk at Toronto, Ont., has been appointed assistant superintendent of the Eastern division, with office at Montreal, Que. Robert Muirhead, assistant terminal superintendent at Toronto succeeds Mr. Farrell, and Grant Gordon succeeds Mr. Muirhead.

N. R. Howard, assistant division superintendent of the Chicago, Burlington & Quincy, with headquarters at Galesburg, Ill., has been appointed superintendent of the Burlington division, with office at Burlington, Ia., succeeding O. E. Stewart, resigned. W. E. Fuller, chief dispatcher, succeeds Mr. Howard.

U. E. Gillen, superintendent of the Middle division of the Grand Trunk at Toronto, Ont., has been appointed superintendent of the Eastern division, with headquarters at Montreal, Que., succeeding H. E. Whittenberger, transferred as superintendent to the Middle division, with headquarters at Toronto, Ont., succeeding Mr. Gillen.

#### Traffic Officers.

J. F. Curdle has been appointed commercial agent of the New York Central Lines, with office at St. Louis, Mo., to succeed F. D. Powell, resigned.

Claude R. Prince has been appointed commercial agent of the Chicago & Alton, with office at Birmingham, Ala., succeeding F. E. Eisiminger, resigned.

J. L. Edwards has been appointed traffic manager of the Atlanta, Birmingham & Atlantic, with office at Atlanta, Ga., succeeding B. L. Bugg, promoted.

E. G. Leach has been appointed soliciting freight agent of the Hocking Valley, with office at Columbus, Ohio, succeeding C. W. Pinney, resigned to go to another company.

E. W. Long has been appointed traveling freight agent of the Seaboard Air Line, with office at Charlotte, N. C., succeeding E. O. Jennings, resigned to accept service with another company.

L. M. Shepardson has been appointed commercial agent of the Illinois Central, and the Yazoo & Mississippi Valley, with office at Kansas City, Mo., and H. W. Rogers has been appointed traveling freight agent, with headquarters at Kansas City.

C. B. Fox has been appointed traveling freight agent of the Texas & Pacific, and International & Great Northern, with headquarters at St. Louis, Mo., succeeding A. T. Pratt, who has been transferred to Birmingham, Ala., as commercial agent.

George E. Reynolds, commercial agent of the Louisiana Railway & Navigation Company at Alexandria, La., has been appointed general agent, with headquarters at Dallas, Tex., to succeed E. L. Whitney, resigned. C. N. Nesom succeeds Mr. Reynolds.

W. J. Gorman has been appointed traffic manager of the Chicago, Anamosa & Northern, with headquarters at Anamosa, Ia., to succeed Frank Rauch, resigned. H. Miller, heretofore auditor, has been appointed general freight and passenger agent, with office at Anamosa.

W. W. Wilson, traveling passenger agent of the Illinois Central at Champaign, Ill., has been transferred to Chicago as traveling passenger agent. J. F. Barber, traveling passenger agent, with office at Freeport, Ill., has been appointed city passenger agent, with headquarters at Chicago, succeeding J. P. Brown, resigned to engage in other business.

R. G. Parks, commercial agent of the Georgia & Florida, at Augusta, Ga., has been appointed commercial agent, with office at Savannah, and H. C. Cassels succeeds Mr. Parks. G. R. Barnwell, commercial agent at Greensboro, N. C., has resigned and that agency has been abolished, and the position of W. E. Blichington, traveling freight and passenger agent, at Augusta, Ga., will be abolished on November 1.

E. T. Eckles, general freight agent of the Atlanta & West Point and the Western Railway of Alabama, at Montgomery, Ala., has been appointed freight traffic manager, with headquarters at Atlanta and at Montgomery. E. S. Center, general agent of the executive and traffic departments, at East Point, Ga., now has supervision over all solicitation. F. C. Browder, Jr., chief clerk of the freight traffic department, has been appointed division freight agent, with headquarters at Montgomery.

A. Bowman, whose appointment as assistant general freight agent of the Buffalo, Rochester & Pittsburgh, with headquarters at Buffalo, N. Y., has been announced in these columns, was born on May 23, 1864, at Rochester, N. Y., and was educated at public and high schools. He began railway work on September 1, 1879, as a messenger on the New York Central & Hudson River, and held various positions until he was appointed chief clerk. In September, 1887, he was appointed contracting agent of the Erie, at Rochester, becoming general agent of the same road in June, 1889. On May 1, 1894, he was appointed division freight agent of the Erie, at Rochester, from which position he resigned in August, 1905, to become division freight agent of the Buffalo, Rochester & Pittsburgh, at Buffalo, and now becomes assistant general freight agent of the same road, as above noted.

#### Engineering and Rolling Stock Officers.

L. L. Beall has been appointed engineer maintenance of way of the Atlanta, Birmingham & Atlantic, with headquarters at Atlanta, Ga.

J. B. Gant, inspector of bridges of the Illinois Central, has been appointed inspector of bridges of the Grand Trunk, with office at Montreal, Que.

James Riley, electrical engineer and superintendent motive power and equipment of the Choctaw Railway & Lighting Company, McAlester, Okla., has been appointed electrical engineer of the Missouri, Kansas & Texas, with headquarters at Parsons, Kan.

Harry M. Hutson, whose appointment as division master mechanic of the Baltimore & Ohio, with headquarters at Grafton, W. Va., has been announced in these columns, was born in 1869



H. M. Hutson.

at Piedmont, W. Va., and graduated from Allegheny County Academy, Cumberland, Md., in 1886. The same year he entered the service of the Baltimore & Ohio as machinist apprentice at Piedmont. He left the Baltimore & Ohio four years later to take up mechanical drawing at the Scranton School, and one year later returned to the service of the Baltimore & Ohio and then held various positions in the mechanical department until his appointment as machine shop foreman at Cumberland. He was then engine house foreman at Keyser, W. Va., until February 14, 1912, when he was made general foreman, at Grafton, and now becomes master mechanic of the same road, as above noted.

#### Special Officers.

John B. Lamson has been appointed agriculturist for the Chicago, Burlington & Quincy, with headquarters at Chicago.

#### OBITUARY.

Alfred Hunt Rising, general freight agent of the Southern Pacific, with headquarters at San Francisco, Cal., died suddenly on October 14, at the age of 41 years.

Carl Waldemar Buchholz, consulting engineer of the Erie at New York, died on October 20, at his home in Hempstead, N. Y. He was born on December 13, 1843, at Hettin, Prussia, and was educated at the technical school and gymnasium at that place. He began railway work in 1865, and in 1867 was assistant engineer of the Philadelphia & Reading, and then for two years was division engineer. From 1869 to 1877 he was resident engineer on the same road, and then for three years was principal assistant engineer on the Madeira-Mamore Railway in Brazil, during which time he made two trips to that country and one trip to England. From 1880 to December, 1885, he was engineer of construction of the Philadelphia & Reading. He was appointed chief engineer of the Erie in December, 1885, and in 1892 left that position to become president and chief engineer of the Quaker City Elevated of Philadelphia, Pa. That project failed on account of an adverse decision of the Supreme Court of Pennsylvania, and Mr. Buchholz returned to the Erie as chief engineer in 1893, remaining in that position until May, 1903, since which time he had been consulting engineer of the same road; and since May 15, 1911, he was also chief engineer of the Buffalo Creek, in which the Erie is interested. From 1862 to 1865 he served as acting ensign in the United States navy. At the time of his death he was a member of the American Society of Civil Engineers, New York; the Franklin Institute, Philadelphia, Pa.; the Century Club, New York, and the National Geographic Society, Washington, D. C.

TRANSPORTATION OF CUT FLOWERS IN FRANCE.—The export of fresh cut flowers from the south of France has increased to such an extent that the Paris-Lyons-Mediterranean Railway has been running a special train since October, 1911, to further assist the florists. All the cut-flower cars are assembled at Marseilles and are then directed to their destinations by express. The inauguration of the special train service has considerably shortened the time of transport.



## Equipment and Supplies.

### LOCOMOTIVE BUILDING.

THE CRUCIBLE STEEL COMPANY is making inquiries for 1 locomotive.

THE BOSTON & MAINE will soon be in the market for 150 locomotives.

THE TOLEDO & OHIO CENTRAL is making inquiries for 5 locomotives.

THE ERIE has ordered 25 mikado locomotives from the Baldwin Locomotive Works.

THE CHICAGO & NORTH WESTERN is making inquiries for upwards of 35 locomotives.

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA is making inquiries for 5 locomotives.

THE EAST JORDAN & SOUTHERN has ordered 1 mogul locomotive from the Baldwin Locomotive Works.

THE CHARLOTTE HARBOR & NORTHERN has ordered 1 American type locomotive from the Baldwin Locomotive Works.

THE DELAWARE, LACKAWANNA & WESTERN is in the market for 12 mikado locomotives, 7 freight Pacific type locomotives, and 3 passenger Pacific type locomotives.

THE KANSAS CITY SOUTHERN, mentioned in the *Railway Age Gazette* of October 18, as having exercised an option for locomotives with the American Locomotive Company, has placed no order as yet, but is negotiating with that company for 15 consolidation locomotives.

THE SAN DIEGO & SOUTH EASTERN has ordered 1 ten-wheel switching locomotive from the American Locomotive Company. The dimensions of the cylinders will be 18 in. x 24 in., the diameter of the driving wheels will be 57 in., and the total weight in working order will be 114,000 lbs.

### CAR BUILDING.

THE PACIFIC FRUIT EXPRESS is in the market for 2,000 refrigerator cars.

THE ELGIN, JOLIET & EASTERN is in the market for 1,000 hopper cars.

THE BOSTON & MAINE will soon be in the market for 6,000 box cars and 100 passenger cars.

THE MISSOURI, KANSAS & TEXAS has ordered 28 passenger cars from the Pullman Company.

THE MAINE CENTRAL is considering the purchase of 300 rack cars, 100 flat cars, and 100 gondola cars.

THE CHICAGO, BURLINGTON & QUINCY is in the market for 5 dining cars and 21 combination mail and baggage cars.

THE DELAWARE, LACKAWANNA & WESTERN is in the market for 1,000 box cars, 500 gondola, 500 hopper cars, 200 refrigerator cars.

THE CHICAGO, MILWAUKEE & ST. PAUL will build 3,000 freight cars at the company's shops, and is in the market for underframes, trucks and bolsters for this equipment.

THE NEW YORK CENTRAL & HUDSON RIVER is in the market for 2,000 refrigerator cars. This figure includes the 1,000 refrigerator cars for the Merchants' Despatch Transportation mentioned in the *Railway Age Gazette* of October 11, 1912.

THE INTERCOLONIAL has ordered 500 box cars, 100 Hart convertible cars, 100 flat cars, 50 dump cars, 20 refrigerator cars and 1 tank car from the Canadian Car & Foundry Company, and 3 baggage cars from the Preston Car & Coach Company.

THE CHICAGO & NORTH WESTERN is closing contracts for 6,500 cars as follows: 1,000 box cars, 1,000 all steel hopper cars, and 500 flat cars from the Pullman Company; and 2,000 box cars

and 2,000 gondola cars from the American Car & Foundry Company.

THE CANADIAN PACIFIC, mentioned in the *Railway Age Gazette* of October 11, as having ordered 60 sleeping cars from the Pullman Company, ordered 30 sleeping cars from the Barney & Smith Car Company, and 30 sleeping cars from the Pullman Company at that time.

### IRON AND STEEL.

THE ILLINOIS CENTRAL has ordered 50,000 tons of rails from the Illinois Steel Company.

THE SAN ANTONIO & ARANSAS PASS has ordered 4,000 tons of rails from the Maryland Steel Company.

THE BOSTON ELEVATED has ordered 2,000 tons of structural steel from the Pennsylvania Steel Company.

THE HARRIMAN LINES are reported to have ordered about 100,000 tons of rails, including 75,000 tons from the United States Steel Corporation, and about 25,000 tons from the Colorado Fuel & Iron Company.

GENERAL CONDITIONS IN STEEL.—During the past week there has been no let up in the heavy placing of orders. There have been some increases in prices, particularly on the part of the independent companies and the Steel Corporation is now selling on an average of nearly \$2 a ton below its competitors. It is estimated that the earnings of the corporation for the third quarter will be in the neighborhood of \$30,000,000, and for the last quarter, \$35,000,000. By the end of the year all the lower priced contracts will have been filled, so the earnings for the first quarter of next year are expected to show an improvement over any quarter of 1912.

### SIGNALING.

*New Installations of Block Signals, Interlocking, Telephones for Train Despatching, Etc.*

The Erie is preparing to use telephones in train despatching, on the Susquehanna division. A new wire line will be strung and portable telephones will be carried in the cabooses of the freight trains.

The Buffalo, Rochester & Pittsburgh has advised the New York State Public Service Commission that it will introduce the manual block system on 40 miles of its Rochester division. The company has recently installed automatic block signals on 52½ miles of this division.

PARAGUAY CENTRAL RAILWAY EARNINGS.—During the latter half of the calendar year of 1911 the gross receipts of the Paraguay Central Railway were \$367,580, and the operating expenses \$181,600, leaving net earnings of \$183,980. Other income amounted to \$7,075, and the dividends on the preferred stock were \$94,385. The net income was \$96,670. The net income for period was 35½ per cent. greater than that for the same period of the previous year.

PROPOSED EXTENSION FOR NEW SOUTH WALES LINE.—It is proposed to extend the Canowindra Railway from Canowindra on the Belubula river in the central eastern portion of New South Wales northwest to Eugowra, about 20 miles, and later to build from Eugowra northwest to Parkes, a further 20 miles. The railway from Canowindra to Eugowra, with 60-lb. rails, would cost about \$454,350. The Canowindra Railway runs from Sydney to Canowindra, via Blayney, about 246 miles.

COAL FOR BELGIAN RAILWAYS.—It is proposed to introduce a bill in the Belgian chamber to approve the agreement which has recently been concluded in connection with the decision to reserve for home uses all future orders of coal from the Belgian state railways. According to the agreement the Belgian collieries will have to supply all the coal required by the railway's administration at a rate per ton based on the price fixed by the mining administration. Only small orders for special coal will be placed outside Belgium.

## Supply Trade News.

Mark A. Ross has resigned as treasurer and director of the Pyle-National Electric Headlight Company, Chicago.

The Republic Iron & Steel Company, Youngstown, Ohio, has resumed the payment of the  $1\frac{3}{4}$  quarterly dividend on its preferred stock, which has been omitted since January, 1, 1912.

The Railroad Supply and Equipment Club in the Karpen building, Chicago, has made arrangements for a series of lectures on mechanical subjects to be given in its assembly hall on Saturday evenings.

The name of Northey-Plummer, Ltd., has been changed to Northey-Simmen Signal Company, Ltd. This company makes and installs the Simmen system of railway signaling, and has headquarters at Toronto and Indianapolis.

C. A. Carscadin, formerly vice-president of the Kirby Equipment Company, Chicago, and representative of the Globe Seamless Steel Tubes Company of Milwaukee, has been appointed general sales agent of the Spencer Otis Company, with offices in the Railway Exchange, Chicago.

The Griffin Wheel Company, of Chicago, is to be reorganized under Massachusetts laws. The present Illinois corporation has a capitalization of \$8,000,000. The new company will have an authorized issue of \$12,000,000 common stock, of which \$9,500,000 will be issued, and \$9,000,000 preferred stock, of which \$6,000,000 will be issued.

The Locomotive Superheater Company, New York, is building a plant at East Chicago, in the neighborhood of the property which has been acquired by the locomotive builders for western plants, for the manufacture of superheaters for application to old locomotives. It is expected that the plant will be placed in operation about the first of the year.

Among the railroads that have recently given repeat orders for the Street locomotive stoker are the Norfolk & Western, Chesapeake & Ohio, and the Baltimore & Ohio. The Norfolk & Western has 15 Mallet locomotives in service equipped with this stoker and 25 more of the same type have been ordered. The Chesapeake & Ohio has had 30 mikado locomotives using this stoker in service since the month of June and will receive 25 additional engines in November. The Baltimore & Ohio uses these stokers on five large Mallets and 20 more are being equipped as fast as they go through the shops. This road will also have this stoker applied to 50 mikados being built by the Baldwin Locomotive Works, 20 of which have been received. The Hocking Valley will also use this stoker on five mikado engines which will be received during November.

The United States district court, district of Rhode Island, has granted the W. H. Coe Manufacturing Company, Providence, R. I., an injunction forbidding the American Roll Gold Leaf Company, Providence, R. I., from making, using or selling the inventions patented and claimed in the first, second, third or fourth claims, letters patent 580,217, during the remainder of the term of the life of said letter patent; and has granted the same injunction against the use of letters patent 848,883. The first of these patents covers a machine for packaging decorative films, and the second patent covers a package roll of metallic leaf. The first one is dated April 13, 1897, and the second one April 2, 1907. Complainants are permitted to recover from the defendants profits which the defendants may have made from the use of these patents since August 12, 1910, and C. W. Barrows has been appointed a special master to report to the court on the amount of profit and the amount of damages. It is understood that an appeal will be taken to the Supreme Court.

### TRADE PUBLICATIONS.

RAIL CHAIRS.—The American Rail Chair Company, Findlay, Ohio, has issued an illustrated pamphlet showing the use of the American rail chair applied to wood, concrete and steel ties. This rail chair can be applied to steel or concrete ties without the use of bolts or nuts, and is also equipped with a cushion to eliminate rigidity with these ties.

## Railway Construction.

### New Incorporations, Surveys, Etc.

ARDMORE & WAURIKA.—Incorporated in Oklahoma with \$10,000 capital, and headquarters at Ardmore. The plans call for building from Ardmore, Okla., west to Waurika, 50 miles. D. Carter, L. T. Cook and J. W. Williams, of Purcell, and R. C. Boles, of Chickasha, are incorporators.

BISMARCK, BELLEVIEW VALLEY & WESTERN.—An officer writes that a contract for grading and track laying has been given to the Hamilton-Ryan Construction Company, St. Louis, Mo., for work from Bismarck, Mo., west to Sunlight, thence south to Bunker, 53 miles, and the work is now under way. For about 20 miles the work will be quite heavy, part of the route being through solid rock; there will be a considerable number of culverts and some steel bridges. The bridges will vary in length from 150 ft. to 300 ft., and the trestles from 25 ft. to 40 ft. The company expects to develop a traffic in coal to the iron furnaces, and lumber from the saw mills. E. G. Evans is president, Bismarck, and H. Rohwer is consulting chief engineer, 609 Fullerton building, St. Louis, Mo.

CANADIAN PACIFIC.—An officer writes that route maps have been approved for the Interprovincial & James Bay, to be built from a point on the Kipawa branch of the Canadian Pacific, in the parish of Gendron, north, 54 miles, through the parishes of Mercier, Tabaret, Mazenod and Fabre to Ville Marie in the parish of Du Hamel, county of Pontiac, Que. Work is now under way on 10 miles. Jones & Girouard, Ottawa, have the contract. The average cut and fill work on this section is about 10,000 cu. yds. a mile. The maximum grade will be 1.7 per cent. There will be one steel bridge 30 ft. long. C. W. P. Ramsey, Montreal, is engineer of construction.

CITRUS SOUTHERN (Electric).—According to press reports this company will build from Sanford, Fla., south via Orlando, to Kissimmee, about 35 miles. B. Beacham, S. S. Griffin and C. Dann, Orlando, are said to be interested.

CLARKSBURG & NORTHERN.—According to press reports this line has been sold to New York capitalists. The company is building from New Martinsville, W. Va., south to Salem, 49 miles. Grading has been finished to Middlebourne, 14 miles. It is supposed that the new owners will extend the line to Clarksburg. A survey is being made on the Ohio side of the river from Powhatan to Hannibal. (August 30, p. 408.)

DALLAS SOUTHERN TRACTION.—See Southern Traction.

DENVER, NORTHWESTERN & PACIFIC.—According to press reports work is to be started at once on the extension from Steamboat Springs, Colo., west towards Utah. (August 23, p. 366.)

EDMONTON INTERURBAN.—This company was incorporated in Alberta, Can., in 1910, and was reorganized in September, 1912. It is financed by French and Canadian capitalists, and proposes to build about 300 miles of electric lines, connecting Edmonton with other towns in Central Alberta. Work is now under way from Edmonton to St. Albert, 6 miles. This section is expected to be in operation by June, 1913. A power house is to be built at St. Albert. Other lines are projected from Edmonton, southeast to Beaverhill lake and Tofield, 40 miles; east to Vegreville, 60 miles; west to Lac Sainte Anne, 15 miles; north to Namao, 12 miles; west to Mewassin, 35 miles; southwest to Pigeon lake, 40 miles, and the line north to Morinville, via St. Albert, 28 miles. George Barbey, of Paris and Vancouver, is at the head of the French syndicate. M. Kimpe, managing director, has charge of the construction work.

GRAND TRUNK PACIFIC.—Work is being pushed to complete the branch line from Talmage, Sask., to Weyburn this year.

GREAT NORTHERN.—An officer writes that grading work is nearing completion on a line from Niobe, N. D., via Bowbells to the Canadian boundary, 21 miles. The company expects to complete the track laying this year.

INTERPROVINCIAL & JAMES BAY.—See Canadian Pacific.

LANCASTER, OXFORD & SOUTHERN.—According to press reports this company is planning to build a 15-mile extension



from Oxford, Pa., and to change the existing line, which has a 3 ft. gage to standard gage.

**LIBERTY & CALLICOON.**—Incorporated in New York with \$200,000 capital, to operate an electric or steam line in Sullivan county from Liberty, west via White Sulphur Springs and Youngville to Jeffersonville, 14 miles. The directors include L. H. Brown and A. Brown, of New York; C. B. Ward and F. E. Bridges, Liberty, and S. F. Crocker, Brooklyn.

**LUFKIN, HEMPHILL, HEMPSTEAD & GULF.**—Incorporated in Texas with \$100,000 capital and headquarters at Hemphill. The plans call for building from Kindred, in San Augustine county, Texas, east to a point on the Sabine river, in Sabine county, 30 miles. The incorporators include H. Knox and G. E. Pratt of Hemphill. C. B. Collins, Lufkin; W. M. Kady and B. E. Smith of McNary, La.; R. Stack, Woodworth, La., and A. MacDonald, Houston.

**MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.**—An officer writes that the company is making surveys west of Ambrose, N. D., for an extension of the Flaxton line. The extension will be about 80 miles long, but the definite location has not yet been decided on.

**MISSOURI, KANSAS & TEXAS.**—The report of this company for the year ended June 30, 1912, shows that the company has acquired during the year the Wichita Falls Lines, extending from Newcastle, Tex., to Woodward, Okla., with a branch line from Altus, Okla., to Wellington, Tex., in all 333.37 miles. The line from Hammon, Okla., to Woodward, 66.33 miles, was built and placed in operation during the year, and 83.67 miles from Woodward, Okla., to Forgan are under construction and will be completed and placed in operation soon. During the year embankments were widened on 66 miles of roadway, and 302 miles of ditching was done, 3 miles of track were ballasted, 274 miles of track rebalasted, and 103 miles of new 85-lb. rails were laid. Fifty-two miles of yard and industrial track were constructed, and work has been started on new division terminals at Waco, Tex., which will be placed in operation during 1912. The Galveston causeway and bridge, 2 miles long, which connects Galveston with the mainland, was opened for traffic during the year and is now being used by the M. K. & T.

**MOBILE-WEST SHORE TRACTION.**—According to press reports this company, which was organized last year, expects to begin construction work about December 1 from Mobile, Ala., south to Alabama Port, thence west via Coden and Bayou Labatre to Pascagoula, Miss., about 55 miles. E. E. Posey, Mobile, is president.

**NORTH YAKIMA & VALLEY.**—An officer writes that a contract has been given to the Valley Construction Company of Kennewick, Wash., to build a 3-mile branch from the Naches branch at a point about three miles northwest of North Yakima, Wash., northwest, following Cowiche creek through the Cowiche valley. (October 11, p. 710.)

**SALT LAKE & UTAH (Electric).**—An officer writes that the plans call for building from Salt Lake City, Utah, via Taylorsville, West Jordan, South Jordan, Riverton, Lehi, American Fork, Pleasant Grove, Provo, Springville, Spanish Fork and Salem to Payson, about 65 miles. The company expects to begin work on the line soon. W. C. Orem, Salt Lake City, may be addressed. (October 18, p. 775.)

**SOUTHERN TRACTION.**—This company, which is a Texas corporation, is now building an electric interurban line from Dallas, Tex., to Corsicana, via Hutchins, Wilmer, Ferris, Trumbull, Palmer, Garrett, Ennis, Alma and Rice; also an electric line from Waxahachie to Waco, via Forrester, Italy, Milford, Hillsboro, Abbott, West and Elm Mott. The grading work is about 80 per cent. completed. The bridge contracts are all let, and are under construction. The company expects to begin laying rails about December 1, and to use 80-lb. rails on the Waco line and 70-lb. rails on the Corsicana line. Orders for rails have already been placed. It is contemplated that electrical equipment will be ordered during the next thirty days. The company has bought the physical property of the Dallas Southern Traction, a line fully equipped, running from Dallas to Waxahachie, via Lisbon, Lancaster, Red Oak and Sterrett, which will connect at Waxahachie with the Waco line, making a through line from Dallas to Waco. The Waxahachie line

has been in operation since October 3. The Southern Traction also owns the street railway system of Waco.

**TENNESSEE NORTHEASTERN.**—This company expects to let contracts about November 1, it is said, for grading 32 miles of its proposed line in Tennessee. E. L. Fickes is president, Maryland, Tenn.

**TENNESSEE VALLEY TRACTION.**—An officer writes that contracts are to be let in January and February, 1913, to build from Dallas, Tex., south via Waxahachie, Frost, Hubbard, Marlin, Cameron, Temple, Belton and Georgetown to Austin, about 200 miles. J. V. Watkins is president, 501 Scollard building, Dallas. (October 11, p. 710.)

**WASHINGTON, POTOMAC & CHESAPEAKE.**—This company, which owns 2½ miles of railway in the District of Columbia and 21 miles from Brandywine, Md., to Mechanicsville, proposes to connect these lines by building 15½ miles and by completing 23¾ miles from Brandywine to Esperanza, making a total line of about 63½ miles. H. W. Watson, president, Franklin Bank building, Philadelphia, Pa.

**WATAUGA RAILWAY.**—See Yadkin River.

**YADKIN RIVER.**—An officer writes that under the name of the Watauga Railway work is now under way from North Wilkesboro, N. C., where a connection is made with the Southern Railway, west via Minton, Goshen, Marley Ford, Goulds, Elkville, Denny, Darby, Middlecane, Watauga and Cooks Gap to a point one mile from Boone, 51.84 miles. A branch is also being built from a point near Elkville, at Elkville Junction south via Grandin, Kings Creek, Hornel, Hibriten and Lenoir, to a connection with the Carolina & North Western, about 20 miles. Grading has been finished on 9 miles, and track has been laid on 3 miles. The approximate cut and fill work averages 20,000 cu. yds. a mile. The maximum curvature will be 8 deg., and maximum grades will be 2½ per cent. The company expects to develop a traffic in lumber, agricultural products and iron ore. W. J. Grandin, president, Lenoir, and H. C. Landon, chief engineer, North Wilkesboro. (April 5, p. 825.)

## RAILWAY STRUCTURES.

**BRANTFORD, ONT.**—Work has been started by the Grand Trunk on the reconstruction of its bridge over the Grand river at Brantford, at a cost of about \$40,000. A new span of 76 ft. 6 in. will be added to the western end of the present structure, and the eastern end will be lengthened 15 ft. The western abutment will be converted into a river pier by being encased in 2½ ft. of concrete.

**BROWNWOOD, TEX.**—The Gulf, Colorado & Santa Fe is asking for bids for a new system of freight yards and terminals to cost about \$500,000, including engine and coach repair yards, a 12-stall brick engine house, machine shop, car repair shed, power house and office and supply buildings.

**DALLAS, TEX.**—The report of the Missouri, Kansas & Texas for the year ended June 30, 1912, shows that the organization of the Union Terminal Company was completed. This company is building a modern passenger terminal which will be used by all lines entering Dallas, Tex. The M. K. & T. has a one-eighth interest in the new terminal. During the year a new span bridge was built over Deep Water creek on the Sedalia division and a span taken out last year at the Marmaton river near Fort Scott was re-erected over the Roche Perche creek on the Columbia branch. The company has continued its policy of renewing wooden trestles and culverts with concrete structures, and during the year 17,105 cu. yds. of concrete were used. Two bridges on the Denton division, which were destroyed by fire, have been rebuilt, combination spans being used. Car sheds at Dallas, at Fort Worth, at Greenville, at Houston, at Denison, at Smithville and at Waco have been put up in Texas, and arrangements are now being made to put up car sheds at several important points in Oklahoma. A new brick passenger station has been built at Boonville, and new stations at Chanute, at Montrose, at New Franklin, at Pryor and Alvarado, at Como and at Bells. The station at McAlester, Okla., has been enlarged, and station improvements made at 38 other points. Nine cotton platforms have been rebuilt or

enlarged during the year. The new Union station, now under construction at Kansas City by the Kansas City Terminal, is about one-fourth completed and work is being pushed. It is expected that the work will be finished in 1913. Plans are now being made for rebuilding the station and to provide office facility at Parsons, Kan., to replace the structure which was destroyed by fire.

**DETROIT, MICH.**—The Wabash has let a contract to C. W. Gindele & Co., of Chicago, for structural work on its new brick and concrete freight station and engine terminals.

**JACKSONVILLE, FLA.**—The Union Terminal Company has been incorporated with \$750,000 capital, it is said, to put up a railway terminal for passengers and freight. T. E. D. Day is president.

**KANSAS CITY, Mo.**—The Union Pacific is planning to build a new freight house, a duplicate of its present freight house, at a cost of \$45,000. It will be of steel and concrete construction, 45 by 379 ft.

**SPARTANBURG, S. C.**—According to press reports the Charleston & Western Carolina is planning to put up a new freight house of brick construction, to cost about \$40,000, at Spartanburg.

**WARWICK, OHIO.**—A reinforced concrete coaling station has recently been installed by the Baltimore & Ohio at Warwick, Ohio, designed for coaling locomotives on four tracks. The new coaling station is of the Holmen type, with a storage capacity of 600 tons, and a conveying capacity of 100 tons an hour. The station is known as the balanced bucket type, each bucket being a counter balance for the other. The only load lifted is the coal itself. The chutes through which the coal is conveyed to locomotive tenders are controlled by counter-balanced undercut gates so that when sufficient coal has been taken the gates cut off the supply when the rope is released. The cost of the work is about \$25,000.

**WEST DULUTH, MINN.**—The Northern Pacific has announced that the proposed work on a new freight and passenger station will be begun this fall.

**NEW BRAZILIAN LINE.**—Early in July, 1912, the railway line connecting the towns of Araguara and Rio-Preto, in the state of Sao Paulo, a distance of 143 miles, was opened to public traffic.

**NEW ARGENTINE LINE.**—The Buenos Aires & Pacific Railway has opened a direct line from Justo Daract in the province of San Luis to La Paz in the province of Mendoza, shortening the trans-Andean route.

**RAILWAY CONSTRUCTION IN GERMAN SOUTHWEST AFRICA.**—The line from Windhoek in northern central German Southwest Africa, south to Keetmanshoop, about 275 miles, has been completed. This line, which is of the same gage as Cape to Cairo line, is very important, as it is the only railroad which connects north and south German Southwest Africa.

**LONG DISTANCE TRUCK RIDER.**—On the arrival of a sleeping car from Bukarest, Roumania, at once of the Paris stations, a youth of 20 was found on the trucks underneath who had ridden all the way for 36 hours in that position without food or drink, and was so coated with dust and dirt that it required a serious resort to the station water supply to make out what sort of an animal he was.

**LINGUISTS MADE OF BAVARIAN RAILWAY EMPLOYEES.**—The railway management of Bavaria is encouraging the training of its employees who come most in contact with passengers in the acquisition of English and French. Those who study regularly and make considerable progress are informed that a month's leave for visits to France and England, with an allowance for expenses, will be allotted to two of them at a time.

**EARNINGS OF THE SOUTH MANCHURIAN RAILWAY.**—The South Manchurian Railway, which works not only the railway, but the important coal mines, harbors, hotels, electric works, etc., on the lines controlled by Japan, reports for the first half of 1912 a prosperous season, enabling it to pay 6 per cent. on its stock, and have a surplus reserve nearly equal to the dividend. The working expenses of the railway are reported to have been only 32 per cent. of its receipts.

## Railway Financial News.

**CANADIAN NORTHERN.**—The company has sold in London \$10,000,000 of 5 per cent. income charge convertible debenture stock, the balance of a total issue of such stock of \$25,000,000. The price was 106, and it is said that the underwriters had to take up 77 per cent. of the total amount offered.

**CHICAGO, PEORIA & ST. LOUIS RAILWAY.**—The court has not as yet fixed any date for the sale of this road, foreclosure of which has been ordered, under the suit of the Equitable Trust Company of New York, trustee. The interest on the second mortgage bonds has not been paid since July 1, 1909, and amounts to \$443,629. The purchasers will buy the road, subject to a first mortgage of \$4,000,000 held by the Colonial Trust Company of New York, and other liens on the property. The road will be bought by the Chicago, Peoria & St. Louis Railroad Company, a new company representing the holders of the second mortgage bonds. The property is valued at \$5,500,000.

**CENTRAL OF GEORGIA.**—At the annual meeting at Savannah, October 17, an issue of \$80,000,000 bonds was authorized.

**CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.**—At the annual meeting to be held in Cincinnati, October 30, the stockholders will be asked to authorize the officers to guarantee first mortgage bonds of the Evansville, Mount Carmel & Northern, a subsidiary road connecting the Cairo division with the Louisville & Nashville.

**DENVER, NORTHWESTERN & PACIFIC.**—A despatch dated from Denver says that Newman Erb has agreed to build the \$5,000,000 transcontinental tunnel and to complete the D. N. W. & P. to Salt Lake at once, on condition that the state of Colorado give reasonable assistance in building the tunnel. Voters of Colorado are to pass, at the November election, on the question of the state's building the tunnel.

**ENID, OCHILTREE & WESTERN.**—The receiver of this road has been discharged, the road having been sold at foreclosure recently.

**MISSOURI PACIFIC.**—The New York Stock Exchange has listed \$500,000 first mortgage 40-year 5 per cent. bonds of the Boonville, St. Louis & Southern, guaranteed principal and interest by the Missouri Pacific.

**NORFOLK SOUTHERN.**—Frank A. Vanderlip, W. E. Corey, J. W. Harriman and B. A. Jackson have been elected directors. The following directors were not re-elected: George J. Gould, Oakleigh Thorne, S. L. Shoonmaker, George C. Clark, John I. Waterbury, E. T. Lamb and Rathbone Gardner.

**SEABOARD AIR LINE.**—Hennen Jennings and Henry Cleveland Perkins of Washington, have resigned as directors.

**TENNESSEE CENTRAL.**—John H. Carpenter has been elected a director, succeeding H. G. Lipscomb, deceased.

**TORONTO, HAMILTON & BUFFALO.**—The directors have authorized the issue of \$1,000,000 additional stock, the proceeds of which will be issued for improvements and betterments. A cash dividend of 20 per cent. has been declared on the \$2,500,000 outstanding stock.

**WESTERN MARYLAND.**—The Equitable Trust Company, New York, is offering \$750,000 of an authorized issue of \$10,000,000 5 per cent. notes of January, 1912-June, 1915, at 99. The notes were sold by the company in January to pay for equipment and betterments. They are a first lien on all of the stock of the George's Creek & Cumberland and the Cumberland & State-Line Railway. These are the subsidiaries that built and own the Cumberland Maryland, the Connellsville, Pa., line of the Western Maryland connecting it with the Pittsburgh & Lake Erie. There is no mortgage on this line and the indenture securing the notes provides that no mortgage shall be placed on it while the issue of notes is outstanding.

At the annual meeting the by-laws of the company were amended, increasing the board of directors from nine to twelve; and J. M. Fitzgerald, John T. Hendricks and L. F. Timmerman were elected directors to fill the three additional places.



## ANNUAL REPORTS.

## MISSOURI, KANSAS &amp; TEXAS RAILWAY COMPANY ANNUAL REPORT, 1912.

## EXECUTIVE OFFICES

49 Wall Street

New York City, October 10th, 1912.

## To the Stockholders of

## Missouri, Kansas &amp; Texas Railway Company:

The directors and officers of your Company submit herewith their report for the fiscal year ended June 30th, 1912.

The operations of the railway system, composed of Missouri, Kansas & Texas Railway Company, The Missouri, Kansas & Texas Railway Company of Texas, Texas Central Railroad Company, The Denison, Bonham and New Orleans Railroad Company, The Dallas, Cleburne and Southwestern Railway Company, Missouri, Kansas & Texas Terminal Company of St. Louis were as follows:

	1912.	1911.	Increase or Decrease.	%
<b>OPERATING REVENUE:</b>				
Freight .....	\$18,100,905.87	\$18,184,663.74	—\$83,757.87	..
Passenger .....	8,220,408.83	8,923,259.32	—702,850.49	8
Mail .....	626,127.78	618,620.35	7,507.43	1
Express .....	752,012.50	836,242.27	—84,229.77	10
Miscellaneous .....	487,264.13	502,507.87	—15,243.74	3
Total .....	\$28,186,719.11	\$29,065,293.55	—\$878,574.44	3
<b>OPERATING EXPENSES:</b>				
Maintenance of Way and Structures .....	\$4,129,255.96	\$3,900,643.24	\$228,612.72	6
Maintenance of Equipment .....	3,745,233.17	3,550,392.86	194,840.31	5
Traffic Expenses .....	738,927.98	742,628.01	—3,700.03	..
Transportation Expenses .....	11,647,572.96	11,409,361.43	238,211.53	2
General Expenses .....	944,858.63	1,003,490.11	—58,631.48	6
Total .....	\$21,205,848.70	\$20,606,515.65	\$599,333.05	3
<b>NET OPERATING REVENUES..</b>	<b>\$6,980,870.41</b>	<b>\$8,458,777.90</b>	<b>—\$1,477,907.49</b>	<b>17</b>
Less, <b>TAXES .....</b>	<b>1,060,181.47</b>	<b>1,005,648.69</b>	<b>54,532.78</b>	<b>5</b>
	\$5,920,688.94	\$7,453,129.21	—\$1,532,440.27	21
Less, <b>OUTSIDE OPERATIONS, NET DEBIT .....</b>	<b>35,325.98</b>	<b>6,604.17</b>	<b>—28,721.81</b>	<b>..</b>
<b>OPERATING INCOME..</b>	<b>\$5,885,362.96</b>	<b>\$7,446,525.04</b>	<b>—\$1,561,162.08</b>	<b>21</b>
Add, <b>OTHER INCOME .....</b>	<b>356,395.67</b>	<b>431,692.69</b>	<b>—75,297.02</b>	<b>17</b>
<b>TOTAL CORPORATE INCOME .....</b>	<b>\$6,241,758.63</b>	<b>\$7,878,217.73</b>	<b>—\$1,636,459.10</b>	<b>21</b>
<b>CHARGES:</b>				
Interest on Bonds .....	\$4,861,619.92	\$4,848,290.07	\$13,329.85	..
Other Interest .....	783,922.79	452,490.22	331,432.57	73
Discount on Securities .....	..	141,547.55	—141,547.55	..
Rentals .....	579,047.71	662,183.81	—83,136.10	13
<b>TOTAL CHARGES .....</b>	<b>\$6,224,590.42</b>	<b>\$6,104,511.65</b>	<b>\$120,078.77</b>	<b>2</b>
<b>NET CORPORATE INCOME .....</b>	<b>\$17,168.21</b>	<b>\$1,773,706.08</b>	<b>—\$1,756,537.87</b>	<b>99</b>

## MILEAGE.

The total mileage operated by the System on June 30th, 1912, increased 3.77 miles as compared with the mileage operated June 30th, 1911, as follows:

Extension of Joplin branch to reach Joplin Union Depot Company's Terminals .....	3.67 miles
Henrietta Division, mileage correction .....	.10 "
<b>Total .....</b>	<b>3.77 "</b>

## OPERATIONS.

Concerning the disappointing results of operations for the fiscal year as shown by the detailed statement on the preceding page, it is fair to say that they were very largely produced by a combination of adverse conditions which has rarely, if ever before, occurred during one fiscal year in your Company's life.

Gross earnings from freight, passenger and express traffic were affected adversely by bad business conditions in the southwestern states, particularly in Oklahoma and Texas, due to the almost complete failure of grain crops in the calendar year 1911, following short crops of the two preceding years, the low price of cotton and the diminished purchasing power of the people because of the exhaustion of their surplus and credit, and the unusually severe weather conditions. Passenger earnings, where 80% of the year's loss occurred, were further affected by quarantines against spinal meningitis, which was epidemic in Texas for about four months, in some cases interfering to such an extent with the movement of the people as to cause reduction of train service.

The increased production of cotton and cotton seed products in 1911 resulted in a large increase in your Company's earnings from that source. Coal earnings increased in comparison with the previous fiscal year when there was a prolonged strike of mine workers. The failure of cereal crops in Oklahoma and Texas produced a heavy movement of grain into those States from other sections and materially increased your Company's earnings on that commodity. There were substantial decreases in the revenues from other classes of freight traffic, due to the adverse conditions previously referred to, and also due in the cases of live stock and lumber, the earnings from which have decreased constantly during the past four years, to the special conditions recited in the preceding annual report of your Company.

The total revenue freight tonnage increased 6.8%. The revenue ton miles increased 4.3%. Freight and mixed train mileage decreased 2.4%. The ton mile revenue was 1.08 cents, a decrease of 4.4%. Revenue per freight train mile was \$2.60, an increase of 2%. The revenue tonnage per train mile was 240.63 tons, an increase of 6.9%; including Company's freight, the tonnage per train mile was 272.93 tons, an increase of 2.6%.

The tonnage per locomotive mile, including Company's freight, was 256.34 tons, an increase of 2%. The average revenue tonnage per loaded car mile was 14.93, an increase of 6.7%. The average haul per ton on revenue freight was 192.1 miles, a decrease of 2.3%. The number of tons of revenue freight carried one mile per mile of road was 493,108, an increase of 3.7%.

The total number of passengers carried decreased 5.8%. The number carried one mile decreased 10.7%. Revenue per passenger per mile was 2.35 cents, an increase of 3.1%. Passenger train mileage decreased .4%. Passenger revenue per train mile was \$1.12, a decrease of 7.4%; passenger service train revenue per train mile was \$1.32, a decrease of 7%.

Operating expenses were increased because of higher wages paid during the whole twelve months of the fiscal year, and affecting all classes of expense, pay rolls having increased \$622,098, or 5.7%; a strike of car men, which affected transportation as well as maintenance expenses; bad water conditions caused by the long drought, damaging motive power and interfering with train service; floods and washouts later in the fiscal year damaging roadway and interrupting traffic; extraordinary tie renewals, caused by the simultaneous failure on a large track mileage in Texas of untreated pine ties which had been placed in the track while the tie treating plant which had been destroyed by fire was being rebuilt; increased payments for loss and damage and personal injuries, due to your Company's efforts to settle all claims promptly.

It will be noted that 71% of the increased operating expenses were in maintenance charges, and that traffic and general expenses decreased.

## FINANCIAL.

The changes in funded debt in the hands of the public during the year were as follows:

	Increase.	Decrease.
M. K. & T. Ry. Co. Two-Year 5% Secured Gold Notes sold .....	\$3,150,000.00	
M. K. & T. Ry. Co. 5% secured notes sold .....	1,100,000.00	
M. K. & T. Ry. Co., St. Louis Division Refunding 4% bond exchanged for M. K. & E. Ry. Co. Second Mortgage 5% Bond .....	1,000.00	
Texas Central Railroad Company First Mortgage 5% Bonds sold .....	798,000.00	
M. K. & T. Ry. Co. One-Year 5% Secured Gold Notes of Aug. 1st, 1910, paid .....		\$368,000.00
Boonville Railroad Bridge Co. First Mortgage 4% Bonds retired by Sinking Fund .....		8,000.00
M. K. & E. Ry. Co. Second Mortgage 5% Bond exchanged for M. K. & T. Ry. Co., St. Louis Division Refunding 4% Bond .....		1,000.00
<b>Total .....</b>	<b>\$5,049,000.00</b>	<b>\$377,000.00</b>
Net increase .....	\$4,672,000.00	(against which \$474,000.00 General Mortgage 4½% Gold Bonds were purchased for the Sinking Fund and are held by the Trustee of the Mortgage).
Other changes in funded debt, as shown by the condensed balance sheet of June 30, 1912, were:		
M. K. & T. Ry. Co. Consolidated Mortgage 5% Bonds, pledged to secure notes .....	\$21,937,000.00	
M. K. & T. Ry. Co. Consolidated Mortgage 5% Bonds, in treasury .....	521,000.00	
M. K. & T. Ry. Co. First Mortgage 4% Bond destroyed, paid for by Company .....		\$ 500.00
M. K. & T. Ry. Co. First Mortgage Extension 5% Bond destroyed, paid for by Company .....		1,000.00
<b>Total .....</b>	<b>\$22,458,000.00</b>	<b>\$1,500.00</b>
<b>Net increase .....</b>	<b>\$22,456,500.00</b>	

Excepting the \$798,000 first mortgage bonds of Texas Central Railroad Company referred to above, there were no bonds sold during the year, and your Company's money requirements were met by the sale of short term notes.

\$3,150,000 Two-Year 5% Secured Gold Notes of Missouri, Kansas & Texas Railway Company, being the remainder of the authorized issue of \$16,000,000, dated May 1st, 1911, maturing May 1st, 1913, were sold to reimburse your Company's treasury for expenditures made for additions and betterments and for the acquisition during the year of securities of railway and terminal companies.

\$1,100,000 secured 5% notes of Missouri, Kansas & Texas Railway Company, maturing June 28th, 1912, were sold and their proceeds used to partly reimburse your Company for expenditures made in acquiring the capital stock of the Wichita Falls & Northwestern Railway Company and Wichita Falls & Southern Railway Company hereinafter referred to. These notes were extended to July 1st, 1912, and were paid on that date from the proceeds of an issue of \$1,500,000 one-year 5% secured notes maturing July 1st, 1913.

\$4,728,000 Missouri, Kansas & Texas Railway Company Consolidated Mortgage 5% Gold Bonds were authenticated under the mortgage and delivered to your Company, as follows:

In reimbursement of expenditures made for additions and betterments .....	\$1,509,000.00
Against the pledge of M. K. & T. Ry. Co. General Mortgage Bonds .....	191,000.00
Against M. K. & T. Ry. Co. General Mortgage Bonds retired by Sinking Fund .....	474,000.00
Against pledge of Capital Stock of Wichita Falls & Northwestern Railway Company acquired during the year .....	1,940,000.00
Against pledge of Capital Stock of Wichita Falls & Southern Railway Company acquired during the year .....	51,000.00
Against pledge of Capital Stock and First Mortgage Bonds of Denison, Bonham & New Orleans Railroad Co. ....	264,000.00
Against pledge of First Mortgage Bonds of Missouri, Kansas & Texas Terminal Company of St. Louis acquired during the year .....	294,000.00
Against Boonville Railroad Bridge Company First Mortgage Bonds retired by Sinking Fund .....	5,000.00
<b>Total .....</b>	<b>\$4,728,000.00</b>

Of the above mentioned Consolidated Mortgage bonds, \$521,000 were on June 30th, 1912, in your Company's treasury, \$2,787,000 were pledged under the Two-Year notes maturing May 1st, 1913, and \$1,420,000 were pledged under \$1,100,000 5% notes maturing July 1st, 1912.

General Mortgage Bonds to the amount of \$191,000 were authenticated and delivered to your Company upon certificates of expenditures for additions and betterments to your property north of Red River. These bonds have been pledged under the Consolidated Mortgage.

#### WICHITA FALLS & NORTHWESTERN RAILWAY COMPANY.

##### WICHITA FALLS & SOUTHERN RAILWAY COMPANY.

Your Company acquired during the year all of the capital stock of the Wichita Falls & Northwestern Railway Company, an Oklahoma corporation, of the aggregate par value of \$2,000,000, and all of the capital stock of the Wichita Falls & Southern Railway Company, a Texas corporation, of the aggregate par value of \$53,000. Those companies operated on June 30th, 1912, a system of railways known as the Wichita Falls Lines, extending from Newcastle, Texas, to Woodward, Oklahoma, with a branch line extending from Altus, Oklahoma, to Wellington, Texas, aggregating 333.37 miles, of which 328.60 miles are owned and 4.77 miles are used under trackage agreements with other lines. The line from Hammon, Okla., to Woodward, 66.33 miles, was constructed and placed in operation during the fiscal year, and 83.67 miles from Woodward to Forgan, Okla., are under construction and will be completed and placed in operation soon. This new construction of 150 miles was arranged by the Wichita Falls & Northwestern prior to the purchase of its capital stock by your Company. The Oklahoma corporation is the owner of all of the stock and bonds of the Wichita Falls Railway Company, which owns 17.98 miles of road extending from Henrietta to Wichita Falls, Texas, and this mileage has been operated by your System, since its construction, under a contract which provides for specified divisions of rates and for the payment to the Wichita Falls Railway Company of the net earnings. The payments by your System to the Wichita Falls Railway under this contract have averaged \$112,573, during the past three years, and such payments will of course hereafter be retained within the System, because of the acquisition of the Wichita Falls lines.

On June 30th, 1912, the outstanding capitalization of the lines in question was as follows:

<b>Wichita Falls &amp; Northwestern:</b>		
Capital Stock .....	\$2,000,000.00	
First Mortgage Bonds .....	2,236,000.00	
Panhandle Division Bonds .....	882,000.00	
Beaver Division Bonds .....	2,500,000.00	
First Mortgage 6% Notes .....	220,000.00	
		<b>\$7,838,000.00</b>
<b>Wichita Falls &amp; Southern:</b>		
Capital Stock .....	\$ 53,000.00	
First Mortgage Bonds .....	757,000.00	
		<b>810,000.00</b>
<b>Total .....</b>		<b>\$8,648,000.00</b>

The following table shows the average earnings of the Wichita Falls lines (including Wichita Falls Railway) during the three fiscal years ended June 30th, 1912:

Gross revenue .....	\$958,597.00
Operating expenses and taxes .....	537,244.00
<b>Net earnings .....</b>	<b>\$421,353.00</b>
Interest, rentals and other charges .....	249,164.00
<b>Surplus .....</b>	<b>\$172,189.00, equal to 8.4% on \$2,053,000.00 capital stock.</b>

The Wichita Falls Lines occupy some of the most fertile and densely populated agricultural country in northwest Texas and western Oklahoma. The principal agricultural products are cotton, corn, wheat, oats, broom corn and forage crops. The raising of hogs and cattle for market is an important industry. Large deposits of coal exist at Newcastle, Texas, the southern terminus of the Wichita Falls & Southern. Important discoveries of oil and gas in the district tributary to Wichita Falls were made during the year. The commercial and agricultural development of the territory contiguous to these lines is progressing rapidly. The earnings of the Wichita Falls Lines suffered during the past year from the same adverse conditions which affected the operations of other roads in the Southwest, but there is every indication that the current fiscal year will be a prosperous one, and your management is of the opinion that these lines will be valuable feeders to your System. There is no floating debt, and under the terms of purchase the vendors of the stock discharged all of the current liabilities existing on July 1st, 1911.

The mileage and operations of the Wichita Falls Lines will be included in the System's reports when the extension to Forgan is completed and placed in operation.

#### DALLAS UNION PASSENGER STATION.

The organization of the Union Terminal Company of Dallas, Texas, was perfected during the year. That company is constructing a modern passenger terminal which will be used by all lines entering Dallas. The authorized and issued capital stock of the company is \$48,000, of which one-eighth is owned by The Missouri, Kansas & Texas Railway Company of Texas, and one-eighth by each of the following: The Texas and Pacific Railway Company; Houston & Texas Central Railroad Company; Gulf, Colorado and Santa Fe Railway Company; The Trinity & Brazos Valley Railway Company; St. Louis, San Francisco & Texas Railway Company; The Chicago, Rock Island & Gulf Railway Company, and St. Louis Southwestern Railway Company of Texas. The estimated cost of the terminal is \$3,000,000, and construction will be financed by an issue of first mortgage 5% thirty-year bonds of the Terminal Company, the principal and interest of which will be guaranteed jointly and severally by the eight proprietary companies.

This terminal is located on the main line of your railroad through Dallas, and will relieve your System of the ultimate necessity of building and maintaining for itself a costly passenger station in one of the largest cities of Texas.

#### PHYSICAL CONDITIONS.

The property was well maintained throughout the year, and the road is in good condition notwithstanding the troubles experienced on account of the severe winter and the wet spring. Expenditures for permanent additions and betterments aggregated \$1,559,586.40. While no heavy improvement work was done, the betterment of the roadway and the enlargement and improvement of various facilities was carried on.

The policy of renewing wooden trestles and culverts in concrete has been continued, 17,105 cubic yards of concrete having been used during the year.

A new span bridge was erected over Deepwater Creek on the Sedalia Division, and a span taken out last year at the Marmaton River near Fort Scott was re-erected over the Roche Perche Creek on the Columbia Branch in order to permit the handling of cars of 100,000 pounds capacity over that line.

Two bridges on the Denton Division which were destroyed by fire have been rebuilt, combination spans being used.

103 miles of new 85-pound rails were laid.

Embankments were widened on 66 miles of roadway, and 302 miles of ditching was done.

Three miles of track were ballasted and 274 miles of track reballasted.

A total of 2,097,107 cross ties and 1,173 sets of switch ties were used during the year.

Eight miles of new wire fence were constructed, and 340 miles of fence rebuilt.

52 miles of yard and industrial tracks were constructed.

The construction of new division terminals at Waco has been commenced and a portion of them will be placed in service this Autumn, when the division point will be moved from Hillsboro, thereby adding 39 miles to the freight divisions from Dallas and Ft. Worth, which will make a considerable saving in transportation expense.

The following new buildings and structures have been erected: Car sheds at Dallas, Ft. Worth, Greenville, Houston, Denison, Smithville and Waco, in order to comply with a law passed by the Texas Legislature; and arrangements are now being made to construct sheds at several of the important points in Oklahoma to comply with a similar law enacted in that State.

A new brick passenger station has been constructed at Boonville, and new stations at Chanute, Montrose, New Franklin, Pryor, Alvarado, Como and Bells. The depot at McAlester has been enlarged and station improvements made at 38 other points.

The water supply at various points has been improved.

Nine cotton platforms have been rebuilt or enlarged.

#### ROLLING STOCK.

New equipment received during the fiscal year comprised the following:

17 locomotives.
3 passenger cars.
178 freight cars.
4 company service cars.

10 passenger locomotives of the Pacific type were contracted for and will be delivered this Autumn.

The policy of the management to provide new equipment during each year to replace equipment which has been destroyed or retired, will occasion the purchase or construction of some new equipment during the current year. It will also be necessary to provide some additional new freight and passenger equipment in order to properly handle the traffic.

#### LAND GRANT SUIT.

The United States Court of Claims decided adversely your Company's suit against the Government to recover \$61,287,800, the value of Indian lands granted to your Company, basing its decision on the grounds that the grant under the Act of Congress of 1866 was not absolute but was conditional, and that the United States had the right to ignore same. The Court admitted, however, that there was no other land grant similar in terms and conditions, and the questions decided were, therefore, decided as original propositions, and the adverse opinion of the Court is not sustained by any judicial precedent or authority. The case has been appealed to the Supreme Court of the United States, but in regular course will not be reached for argument for two or three years.

#### GENERAL REMARKS.

During the year the Galveston Causeway and bridge was opened for traffic, and is now being used by your System's trains. This great steel and concrete structure, 2 miles in length, which permanently connects Galveston Island with the mainland, was erected by Galveston County at a cost of \$1,670,000, one-half of which was paid by the Galveston, Harrisburg & San Antonio Railway Company, Gulf, Colorado & Santa Fe Railway Company and Galveston, Houston & Henderson Railroad Company. Your Company owns half of the capital stock of the last named Company. The three contributing railroads have a lease of the railroad portion of the causeway running for 999 years without further payment except for their proportion of maintenance charges. The causeway provides two tracks for steam railroads, one track for an electric interurban railroad and a roadway for vehicles and pedestrians. It takes the place of the single track pile bridge which has been the only means of transportation except by boat between the City of Galveston and the mainland since the destruction of all other bridges by the great storm of 1900.

The new Union Station now under construction at Kansas City by the Kansas City Terminal Company is about one-fourth completed, and work is progressing rapidly. It is expected that the plant will be completed in 1913.

On March 17th, 1912, the station building at Parsons, Kansas, the upper floors of which were occupied by your Company's general offices, was destroyed by fire. Plans are now being prepared for the rebuilding of the station and office facilities at that point.

The only legislation adopted during the year which seriously affected your operations was the Federal boiler inspection law, which added approximately \$64,000 to the mechanical department's expenses. There were no laws passed affecting your revenues, but the Interstate Commerce Commission and the various State Railroad Commissions made a number of important rulings, practically all of which will operate to reduce your System's revenues. Several important decisions affecting rates were rendered by the Courts, some of which were favorable to railway interests. The growing requirements of railway commissions for statistical information are constantly and materially increasing your Company's operating expenses.

Public sentiment in the southwestern states seems to be more favorable to railroads. Significant of the change in public attitude is the organization in Texas of a Welfare Commission, a voluntary association of prominent business and professional men for the purpose of making a careful study of the laws and conditions which retard the prosperity and development of the State. The Democratic party, which dominates the politics of Texas, in its platform adopted at the State convention in San Antonio during July, advocates changes in the present law regulating the issue of securities by railroads, stating that "it is evident that the present transportation facilities are not adequate to the proper transaction of its (the State's) business," and pledging the party to the enactment of new laws "to the end that new mileage may be constructed and the facilities of all lines be extended and improved."

While the result of your System's operations during the fiscal year under review was most unsatisfactory, due to the special conditions explained in preceding paragraphs, the outlook for the current fiscal year is very promising. There has been an abundance of rainfall in your whole territory for the first time in three years, and crop conditions are on the whole the best in many years. General business conditions are gaining steadily. The improvement which is being made in operating methods and the promising outlook for business during the coming season lead your management to believe that the current fiscal year will show a satisfactory increase in gross and net earnings.

The regular dividends aggregating 4% on the preferred capital stock of your Company were declared as usual and charged to the surplus of pre-



vious years, your Directors believing that the showing for the single year was due to temporary causes which did not justify a discontinuance of the dividend. Their judgment has largely been confirmed by the notable improvement manifested in your System's earnings since the beginning of the present fiscal year.

On February 1st, 1912, Mr. Edwin Hawley, Chairman of the Board of Directors, died. Appropriate resolutions adopted by the Board of Directors appear elsewhere in this report.

Mr. Henry E. Huntington was elected a Director of your Company to fill an existing vacancy. Mr. Walter S. Crandell was elected a Director to fill the vacancy created by the death of Mr. Edwin Hawley. Mr. C. E. Schaff was elected a Director to fill a vacancy created by the resignation of Mr. B. F. Yoakum.

Mr. Frank Trumbull was elected Chairman of the Board of Directors on February 8th, 1912, succeeding Mr. Edwin Hawley, deceased.

Mr. C. E. Schaff was elected President of the Company on April 10th, 1912, succeeding Mr. A. A. Allen, resigned.

Mr. James Hagerman retired as General Counsel and was appointed Consulting Counsel. Mr. Joseph M. Bryson, formerly General Solicitor, was appointed General Counsel.

Statements and tables are appended which present your System's accounts and operations.

Respectfully submitted,

C. E. SCHAFF,  
President.

FRANK TRUMBULL,  
Chairman of the Board.

#### STATEMENT OF INCOME ACCOUNT.

FOR THE FISCAL YEAR ENDED JUNE 30TH, 1912.

Gross Operating Revenues .....	\$28,186,719.11
Operating Expenses .....	21,205,848.70
Net Operating Revenue .....	\$6,980,870.41
Outside Operations	
Dining Service (Loss) .....	\$49,327.62
LESS	
Sleeping Cars (Gain) .....	\$764.80
Dipping Vats (Gain) .....	13,236.84
	14,001.64
Net Loss .....	35,325.98
Total Net Revenue .....	\$6,945,544.43
LESS	
Taxes Accrued .....	1,060,181.47
Operating Income .....	\$5,885,362.96

#### Other Income

Hire of Equipment .....	\$69,436.78
Rentals Received .....	121,049.48
Interest and Income from Investments .....	165,909.41

Total Other Income ..... 356,395.67

Gross Income ..... \$6,241,758.63

#### DEDUCTIONS

Interest Accrued on Bonds .....	\$4,861,619.92
Other Interest Accrued .....	783,922.79
Rentals Paid .....	579,047.71

Total Deductions ..... 6,224,590.42

Net Income ..... \$17,168.21

#### PROFIT AND LOSS ACCOUNT

FOR THE FISCAL YEAR ENDED JUNE 30TH, 1912.

BALANCE TO CREDIT OF PROFIT AND LOSS, JUNE 30TH, 1911 .....	\$5,783,632.09
BALANCE FOR YEAR BROUGHT FORWARD FROM INCOME ACCOUNT .....	17,168.21

\$5,800,800.30

#### DEDUCTIONS FOR YEAR:

Depreciation Prior to July 1st, 1907, on Equipment Destroyed .....	\$58,735.59
Depreciation on Side Tracks taken up .....	11,086.35
Discount on Notes sold .....	382,112.98
Uncollectible bills charged off .....	78,202.50

#### DIVIDENDS:

M., K. & T. Ry. Co. Preferred Stock (4%) ..	\$520,000.00
Texas Central Preferred Stock Outstanding (5%) .....	1,000.00
Texas Central Common Stock Outstanding (5%) .....	635.00

521,635.00

Southwestern Coal & Improvement Co. Sinking Fund transferred to "Appropriated Surplus" .....	15,232.62
Miscellaneous .....	4,409.10

\$1,071,414.14

BALANCE TO CREDIT OF PROFIT AND LOSS, JUNE 30TH, 1912 .....

\$4,729,386.16

#### CONDENSED GENERAL BALANCE SHEET.

FISCAL YEAR ENDED JUNE 30TH, 1912.

#### ASSETS.

<b>PROPERTY INVESTMENT</b>	
Cost of Road and Equipment .....	\$209,824,578.29
Less Accrued Depreciation on Existing Equipment, Credit .....	954,561.29
	\$208,870,017.00
Securities of Proprietary, Affiliated and Controlled Companies, Pledged .....	\$2,464,444.22
Miscellaneous Investments .....	144,800.84
	\$2,609,245.06
SECURITIES ISSUED OR ASSUMED, PLEDGED .....	\$211,479,262.06
	21,937,000.00
<b>WORKING ASSETS</b>	
Cash .....	\$1,314,211.65
Loans and Bills Receivable .....	52,913.22
Net Balance Due from Agents, Train Auditors and Conductors .....	224,505.59
Miscellaneous Accounts Receivable .....	1,252,615.08
Material and Supplies .....	2,955,420.57
	\$5,799,666.11
<b>SECURITIES IN TREASURY, UNPLEDGED</b>	
Securities of Proprietary, Affiliated and Controlled Companies .....	\$5,187.78
Securities Issued or Assumed .....	538,043.00
Marketable Securities .....	178,884.39
	\$722,115.17
<b>ACCRUED INCOME NOT DUE</b>	
Unmatured Interest, Dividends and Rents Receivable .....	\$110,000.00
<b>DEFERRED ASSETS</b>	
Working Funds—Advanced .....	\$41,277.99
Rents and Insurance Paid in Advance .....	33,038.79
Cash and Securities in Sinking and Redemption Funds .....	969,380.53
Cash and Securities in Provident Funds .....	106,225.72
Other Deferred Debit Items .....	97,534.50
	\$1,247,457.53
	\$7,879,238.81
Total .....	\$241,295,500.87

#### LIABILITIES.

#### CAPITAL STOCK:

M., K. & T. Ry. Co. Common Stock .....	\$63,300,300.00
" Preferred Stock .....	13,000,000.00
Stock Subsidiary Companies (page 30) .....	35,200.00

\$76,335,500.00

#### FUNDED DEBT (see page 30):

Outstanding .....	\$131,305,500.00
Pledged to secure Notes .....	21,937,000.00
In Treasury .....	521,000.00

\$153,763,500.00

\$230,099,000.00

#### WORKING LIABILITIES:

Loans and Bills Payable .....	\$211,473.07
Traffic and Car Service Balances Due to Other Companies .....	129,717.84
Audited Vouchers Unpaid .....	1,187,712.41
Audited Wages Unpaid .....	970,784.18
Miscellaneous Accounts Payable .....	152,611.46
Matured Interest, Dividends and Rents Unpaid .....	490,286.03

\$3,142,584.99

#### DEFERRED LIABILITIES:

Unmatured Interest, Dividends and Rents Payable .....	\$1,083,763.77
Taxes Accrued .....	304,573.31
Liability on Account of Provident Funds ..	108,374.99
Other Deferred Credit Items .....	58,760.66

\$1,555,472.73

4,698,057.72

#### APPROPRIATED SURPLUS:

Additions to Property Since June 30, 1907, through Income .....	\$1,563,429.84
Reserves Invested in Sinking and Redemption Funds .....	205,627.15

\$1,769,056.99

PROFIT AND LOSS BALANCE .....

4,729,386.16

6,498,443.15

Total .....

\$241,295,500.87

The Company is also a guarantor, jointly with eleven other Railway Companies, of Kansas City Terminal Railway Company First Mortgage Bonds .....

\$25,094,000

and jointly with three other Railway Companies of Joplin Union Depot Company First Mortgage Bonds .....

650,000

#### ADDITIONS AND BETTERMENTS TO ROAD AND EQUIPMENT.

FOR THE FISCAL YEAR ENDED JUNE 30TH, 1912.

	M., K. & T. Ry. Co.	M., K. & T. Ry. Co. of Tex.	Texas Central Railroad.	Total.
Right of Way and Station Grounds .....	\$4,252.10	\$91,553.11		\$95,805.21
Widening Cuts and Fills .....	23,681.36	24,213.24		47,894.60
Protections of Banks and Drainage .....	3,744.50	3,781.36		7,525.86
Grade Reductions and Changes of Line .....	*39,376.90	1,696.29		*27,680.61
Bridges, Trestles and Culverts .....	132,024.46	22,181.40	\$3,571.16	157,777.02

	M., K. & T. Ry. Co.	M., K. & T. Ry. Co. of Tex.	Texas Central Railroad.	Total.
Increased Weight of Rail Improved Frogs and Switches .....	45,378.35	83,436.68	264.64	129,079.67
Track Fastenings and Apparatus .....	367.89	336.05		703.94
Ballast .....	56,687.83	65,127.39		121,815.22
Additional Main Track .....	140,199.55	153,670.35	5,452.61	299,322.51
Sidings and Spur Tracks .....	4,276.62	7,330.27		11,606.89
Terminal Yards .....	114,295.79	44,041.01	9,324.60	167,661.40
Terminals at St. Louis, Mo. .....	41,437.27	72,254.02		113,691.29
Fencing Right of Way .....	92,992.56			92,992.56
	3,842.73	169.49		4,012.22

	M., K. & T. Ry. Co.	M., K. & T. Ry. Co. of Tex.	Texas Central Railroad.	Total.
Improvement of Crossings Over and Under Grade.	71.68	.....	.....	71.68
Interlocking Apparatus...	223.68	321.21	1,510.56	2,055.45
Block and Other Signal Apparatus .....	2,591.69	2,551.72	.....	5,143.41
Telegraph and Telephone Lines .....	5,891.69	19,415.32	.....	25,307.01
Station Buildings and Fix- tures .....	49,224.86	19,128.92	4,311.03	72,664.81
Roadway Machinery and Tools .....	61.60	.....	.....	61.60
Shops, Engine Houses and Turntables .....	6,746.55	44,542.76	445.50	51,734.81
Shop Machinery and Tools	8,915.24	3,311.62	1,899.48	14,126.34
Water and Fuel Stations.	13,935.26	39,060.64	2,554.78	55,550.68
Other Additions and Bet- terments .....	16,959.84	18,083.57	.....	35,043.41
New Equipment Added to List .....	935.49	.....	.....	935.49
New Equipment for Re- placement .....	360,809.11	150,433.71	45,072.87	556,315.69
Equipment Retired from Service .....	*280,895.12	*55,515.08	*43,120.80	*379,531.00
Replacement Value Build- ings Destroyed by Fire.	*104,913.29	*336.67	3,149.20	*102,100.76
Total .....	\$714,362.39	\$803,458.11	\$41,765.90	\$1,559,586.40
Purchase of securities of D. B. & N. O. Ry. ....	.....	.....	.....	243,500.00
Total increase in cost of property during year .....	.....	.....	.....	\$1,803,086.40

\* Credit.

## TRAFFIC AND OPERATING STATISTICS.

FISCAL YEAR ENDED JUNE 30TH, 1912, COMPARED WITH JUNE 30TH, 1911.

	1912.	1911.	Increase or Decrease.	Per cent.
FREIGHT:				
Average Mileage Oper- ated .....	3,398.19	3,377	21	.6
Freight Train Revenue.	\$18,100,905.87	\$18,184,663.74	—\$83,757.87	.5
Per cent. of Gross Rev- enue .....	64.22	62.56	1.66	2.7
Freight Train Revenue per Mile of Road....	5,326.63	5,384.86	—58.23	1.1
Freight Train Revenue per Train Mile .....	2.60	2.55	.05	2.0
Freight Train Revenue per Revenue Car Mile (cents) .....	.1005	.1000	.0005	.5
Freight Train Revenue per Ton .....	2.08	2.23	—15	6.7
Freight Train Revenue per Ton per Mile (cents) .....	.0108	.0113	—0.0005	4.4
Tons Carried, Revenue Freight .....	8,722,847	8,165,406	557,441	6.8
Tons Carried One Mile, Revenue Freight .....	1,675,674,860	1,605,999,502	69,675,358	4.3
Tons Carried One Mile per Mile of Road, Revenue Freight .....	493,108	475,570	17,538	3.7
Tons per Train, Rev- enue Freight .....	240.63	225.00	15.63	6.9
Tons per Train, Includ- ing Company's Freight	272.93	266.14	6.79	2.6
Tons per Loaded Car, Revenue Freight .....	14.93	13.99	.94	6.7
Tons per Loaded Car, Including Company's Freight .....	16.93	16.55	.38	2.3
Tons per Locomotive, Revenue Freight .....	226.00	212.38	13.62	6.4
Tons per Locomotive, Including Company's Freight .....	256.34	251.21	5.13	2.0
Average Miles Each Rev- enue Ton Carried....	192.10	196.68	—4.58	2.3
Freight Train Miles....	6,963.635	7,137,609	—173,974	2.4
Freight Car Mileage....	180,053,246	181,912,506	—1,859,260	1.0
Loaded Car Mileage....	112,228,722	114,833,258	—2,604,536	2.3
Empty Car Mileage....	67,824,524	67,079,248	745,276	1.1
Percentage of Empty Car Mileage .....	37.67	36.87	.80	2.2
Total Cars per Freight Train .....	25.86	25.49	.37	1.5
Loaded Cars per Freight Train .....	16.12	16.09	.03	.2
Empty Cars per Freight Train .....	9.74	9.40	.34	3.6
Average Number Loaded Cars per Train, North and East .....	14.33	13.99	.34	2.4
Average Number Empty Cars per Train, North and East .....	11.38	11.12	.26	2.3
Average Number Loaded Cars per Train, South and West .....	17.93	18.18	—25	1.4
Average Number Empty Cars per Train, South and West .....	8.07	7.68	.39	5.1
PASSENGER:				
Average Mileage Oper- ated .....	3,398.19	3,377	21	.6
Revenue from Passen- gers .....	8,220,408.83	8,923,259.32	—702,850.49	7.9
Per cent. of Gross Rev- enue .....	29.16	30.70	—1.54	5.0
Passenger Service Train Revenue .....	9,702,544.24	10,483,673.98	—781,129.74	7.5
Passenger Revenue per Mile of Road.....	2,419.06	2,642.36	—223.30	8.5

	1912.	1911.	Increase or Decrease.	Per cent.
Passenger Revenue per Train Mile .....	1.12	1.21	—0.09	7.4
Passenger Service Train Revenue per Train Mile .....	1.32	1.42	—0.10	7.0
Average Revenue from Each Passenger .....	1.44	1.48	—0.04	2.7
Average Revenue per Passenger per Mile (cents) .....	.0235	.0228	.0007	3.1
Passengers Carried ....	5,692,238	6,044,154	—351,916	5.8
Passengers Carried One Mile .....	349,180,896	391,065,334	—41,884,438	10.7
Passengers Carried One Mile per Mile of Road	102,755	115,803	—13,048	11.3
Average Distance Car- ried .....	61.34	64.70	—3.36	5.2
Passengers per Train Mile .....	47.62	55.32	—7.70	13.9
Passenger Train Miles.	7,331,978	7,361,765	—29,787	.4
Passenger Car Mileage.	29,224,569	29,526,385	—301,816	1.0

## TOTAL TRAFFIC:

Gross Operating Rev- enue .....	28,186,719.11	29,065,293.55	—878,574.44	3.0
Gross Operating Rev- enue per Mile of Road	8,294.62	8,606.84	—312.22	3.6
Operating Expenses....	21,205,848.70	20,606,515.65	599,333.05	2.9
Operating Expenses per Mile of Road Oper- ated .....	6,240.33	6,102.02	138.31	2.3
Net Operating Revenue per Mile of Road	6,980,870.41	8,458,777.90	—1,477,907.49	17.5
Operating .....	2,054.29	2,504.82	—450.53	18.0
Taxes Accrued .....	1,060,181.47	1,005,648.69	54,532.78	5.4
Taxes per Mile of Road Owned .....	339.25	322.13	17.12	5.3
Operating Income (Taxes Deducted), per Mile of Road Operated....	1,731.91	2,205.07	—473.16	21.5
Ratio of Operating Ex- penses to Operating Revenue .....	75.23	70.90	4.33	6.1

EQUIPMENT.  
JUNE 30TH, 1912.

## PASSENGER SERVICE:

Chair Cars .....	86
Coaches .....	188
Combination Coach and Baggage	16
Fruit and Refrigerator .....	13
Combination Coach and Mail	34
Baggage Cars .....	85
Express Cars .....	4
Dining Cars .....	7
Postal and Mail .....	24
Sleepers .....	2
Combination Baggage and Mail	19
TOTAL .....	478

## FREIGHT SERVICE:

Box Cars .....	13,440
Refrigerator Cars .....	417
Furniture Cars .....	1,931
Stock Cars .....	199
Stock Cars (Mather).....	800
Combination Coal and Stock.	658
Coal Cars .....	5,822
Flat Cars .....	1,104
Automobile Cars .....	433
TOTAL .....	24,804

## IN COMPANY SERVICE:

Railroad Cars .....	779
Officers' Cars .....	8
Caboose Cars .....	296
Other Cars .....	123
TOTAL .....	1,206

TOTAL, ALL SERVICE.....	26,488
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## LOCOMOTIVES:

Passenger Service .....	163
Freight Service .....	338
Switching .....	127
TOTAL .....	628

## MILEAGE OPERATED JUNE 30TH, 1912.

	Owned.	Operated under trackage or operating agreements.	Total.
Missouri, Kansas & Texas Railway Company	1,633.03	81.38	1,744.11
The Missouri, Kansas & Texas Railway Company of Texas .....	1,119.33	192.43	1,311.76
Texas Central Railroad Company.....	308.72	.....	308.72
The Derision, Bonham & New Orleans Rail- road Company .....	24.15	.....	24.15
The Dallas, Cleburne & Southwestern Rail- way Company .....	9.82	.....	9.82
TOTAL .....	3,125.05	273.81	3,398.86
Mileage in Missouri.....	512.88	29.70	542.58
Mileage in Kansas.....	446.25	47.99	494.24
Mileage in Oklahoma.....	703.90	3.69	707.59
Mileage in Texas.....	1,462.02	173.14	1,635.16
Mileage in Louisiana.....	.....	19.29	19.29
TOTAL .....	3,125.05	273.81	3,398.86